

PRESENTED BY

*Secretary of State of Arizona.*















BULLETIN OF THE UNIVERSITY OF KANSAS

VOL. XII.

APRIL, 1911.

No. 8

# GENERAL CATALOGUE 1910-'11.



LAWRENCE, KANSAS.

Published Monthly by the University.

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*Forty-fifth Annual Catalogue*

OF THE

UNIVERSITY OF KANSAS

For the Year 1910-'11,

AND

Announcements for the Year 1911-'12.



LAWRENCE, KANSAS,  
APRIL, 1911.

1910.

JULY.

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## UNIVERSITY CALENDAR.

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### Academic Year 1910-'11.

Dec. 30, Friday—Christmas recess ends.

Jan. 30 to Feb. 3, Monday to Friday, inclusive—Semiannual examinations.

Feb. 6, Monday—Second term begins.

Feb. 22, Washington's birthday—Legal holiday.

April 14 and 17, Friday and Monday—Easter recess, begins 5:30 P. M. Thursday.

March 31, Friday—First half-term ends.

April 3, Monday—Second half-term begins.

April 27 and 28, Thursday and Friday—Spring Music Festival.

May 29 to June 2, Monday to Friday, inclusive—Annual examinations.

May 30, Tuesday, Memorial Day—Legal holiday.

May 31, Wednesday—Commencement concert by Music department, School of Fine Arts.

June 4, Sunday, 8 P. M.—Baccalaureate sermon.

June 5, Monday, 8 P. M.—Phi Beta Kappa address.

June 6, Tuesday, 10:30 A. M.—Annual Alumni address.

June 6, Tuesday, 8 P. M.—Chancellor's reception.

June 7, Wednesday, 10 A. M.—Commencement exercises.

June 8, Thursday—Opening of Summer Session.

## UNIVERSITY CALENDAR.

---

### Academic Year 1911-'12.

Sept. 13, Wednesday—First term begins.

Sept. 13, 14, 15 and 16, Wednesday, Thursday, Friday and Saturday—Examination of candidates for admission, and presentation of certificates from high schools, academies, and other institutions.

Sept. 15, Friday—General assembly of students and annual address, in University Hall, at 10 A. M.

Nov. 2, Thursday—Fall concert by University Orchestra.

Nov. 20, Monday—Second half-term begins.

Nov. 23 and 24, Thursday and Friday—Thanksgiving recess, begins Wednesday noon.

Dec. 5, Tuesday—Winter concert by University Glee Club.

Dec. 14 and 15, Thursday and Friday—Annual opera performance, School of Fine Arts.

Dec. 19, Tuesday, 8 P. M.—Christmas concert by Music department, School of Fine Arts.

CHRISTMAS RECESS—Saturday, Dec. 23, to Friday, Jan. 5, inclusive, begins noon Friday, Dec. 22.

Jan. 5, Friday—Christmas recess ends.

Jan. 29 to Feb. 2, Monday to Friday, inclusive—Semiannual examinations.

Feb. 5, Monday—Second term begins.

Feb. 12, Monday, Lincoln's birthday—Legal holiday.

Feb. 22, Washington's birthday—Legal holiday.

March 7 and 8, Thursday and Friday—Annual opera performance, School of Fine Arts.

April 5 and 8, Friday and Monday—Easter recess, begins 5:30 P. M. Thursday.

March 29, Friday—First half-term ends.

April 1, Monday—Second half-term begins.

April 25 and 26, Thursday and Friday—Spring Music Festival.

May 27 to 31, Monday to Friday, inclusive—Annual examinations.

May 30, Thursday, Memorial Day—Legal holiday.

May 29, Wednesday—Commencement concert by Music department, School of Fine Arts.

June 2, Sunday, 8 P. M.—Baccalaureate sermon.

June 3, Monday, 8 P. M.—Sigma Xi address.

June 4, Tuesday, 10:30 A. M.—Annual Alumni address.

June 4, Tuesday, 8 P. M.—Chancellor's reception.

June 5, Wednesday, 10 A. M.—Commencement exercises.

June 6, Thursday—Opening of Summer Session.



## CHRONOLOGICAL TABLE.

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- 1855.—(December.) A university provided for in the first constitution of Kansas territory, at Topeka.
- 1857.—(June.) State University at Lawrence provided for by free-state legislature, Topeka.
- 1857.—(September.) Seminary of learning provided for in Lecompton constitution.
- 1858.—(April.) Systems of public instruction, including a university department, provided for in Leavenworth constitution.
- 1859.—(July.) State University provided for as at present, in Wyandotte constitution, now the constitution of the state of Kansas.
- 1861.—Congress set apart and reserved for the use and support of a State University seventy-two sections of land.
- 1863.—Lawrence selected as location for the University of Kansas.
- 1864.—The University organized by the legislature.
- 1865.—March 21, first meeting of the Board of Regents.
- 1866.—July 19, Regents elected the first Faculty of the University, consisting of Elial Jay Rice, A. M., David Hamilton Robinson, A. M., and Francis Huntington Snow, A. M.
- 1866.—North College erected.
- 1866.—September 12, first session of the University opened at North College.
- 1870.—Department of Engineering organized.
- 1872.—Fraser Hall erected and occupied.
- 1876.—Normal Department established.
- 1877.—Department of Music organized.
- 1878.—Department of Law organized.
- 1883.—Medical Hall (old Chemistry Building) erected.
- 1885.—Department of Pharmacy established.
- 1885.—Normal Department discontinued.
- 1886.—Snow Hall erected.
- 1891.—The Preparatory Department discontinued, the work being left to the high schools of the state.
- 1891.—The University reorganized and Schools of Arts, Engineering, Law, Fine Arts and Pharmacy established.
- 1894.—Spooner Library erected.
- 1894.—Chancellor's residence erected.
- 1895.—Blake Hall erected.
- 1896.—The Graduate School established.
- 1899.—The Fowler Shops erected.
- 1899.—The School of Medicine established.
- 1900.—Chemistry and Pharmacy Building erected.
- 1902.—Natural History Museum Building erected.
- 1904.—The name of the School of Arts changed to the College of Liberal Arts and Sciences.
- 1904.—Green Hall erected.
- 1905.—Full four-year course in medicine established.
- 1905.—Eleanor Taylor Bell Memorial Hospital erected.
- 1906.—Robinson Auditorium-Gymnasium erected.
- 1906.—Clinical Laboratory erected.
- 1907.—Civil and Mechanical Engineering Building erected.
- 1908.—Mining Engineering Building erected.
- 1908.—Power plant and laboratories erected.
- 1909.—The School of Education and The Division of University Extension established.
- 1911.—First wing of Administration Building erected.

## BOARD OF REGENTS.

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CHANCELLOR FRANK STRONG, Lawrence.....	<i>Ex officio.</i>	
HON. WILLIAM A. WHITE, Emporia.....	Term exp.	1913
HON. LEON S. CAMBERN, Erie.....	“ “	1913
HON. CHARLES F. FOLEY, Lyons.....	“ “	1913
HON. SCOTT HOPKINS, Horton.....	“ “	1915
HON. JAMES A. KIMBALL, Salina.....	“ “	1915
HON. RODNEY A. ELWARD, Castleton.....	“ “	1915

### *Officers of the Board.*

CHANCELLOR FRANK STRONG....	<i>President, ex officio.</i>
SCOTT HOPKINS .....	<i>Vice President.</i>
RODNEY A. ELWARD .....	<i>Secretary.</i>

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## COMMITTEES OF THE BOARD.

### *Buildings:*

Messrs. WHITE, HOPKINS and FOLEY.

### *Grounds:*

Messrs. KIMBALL, WHITE and ELWARD.

### *Auditing:*

Messrs. ELWARD, WHITE and CAMBERN.

### *Clinical Department:*

Messrs. FOLEY, KIMBALL and HOPKINS.

### *Finance:*

Messrs. CAMBERN, ELWARD and FOLEY.

### *Organization and Policy:*

Messrs. HOPKINS, CAMBERN and KIMBALL.

**PART I.**  
**Officers of the University.**





## GENERAL INFORMATION.

THE GENERAL CATALOGUE of the University of Kansas is issued in the spring of each year. A copy will be sent free to any one desiring it.

SEPARATE CATALOGUES of the schools of the University are issued at the same time with the General Catalogue of the University. Separate catalogues will give complete information as to each school or department of the University. Prospective students of the Graduate School, the School of Engineering, the School of Fine Arts, the School of Law, the School of Pharmacy, the School of Medicine, the School of Education, the University Extension Division or the Summer Session will ask for the separate catalogue of the desired school. They are issued free of cost.

THE ALUMNI CATALOGUE of the University is issued at intervals, giving a list of the graduates of the University. Copies are sent free to graduates and former students of the University.

THE UNIVERSITY NEWS BULLETIN and the PRESS BULLETIN are issued weekly from the mailing room, for the purpose of furnishing the newspapers, high-school students and others of the state items of interest regarding University affairs. They will be sent regularly, without charge, to any one who may express a desire to receive them.

A HIGH-SCHOOL MANUAL is issued at intervals, giving in detail the requirements for entrance to the different schools of the University, together with suggestions as to methods, courses of study, laboratory equipment, and a list of accredited high schools.

SPECIAL BULLETINS are issued during the University year covering topics of importance to the University and the schools and colleges of the state.

THE UNIVERSITY CALENDAR is posted weekly upon the local bulletin board, announcing lectures, concerts, prizes, and other matters of public interest under the auspices of the University, and as soon as possible will be printed in sufficient numbers for distribution, on request, to high schools of the state and to graduates and former students.

For catalogues and other information, address

THE REGISTRAR,

UNIVERSITY OF KANSAS,

Lawrence, Kan.

## ADMINISTRATIVE OFFICERS.

### THE UNIVERSITY.

FRANK STRONG, PH. D., Chancellor.

Room 101, Fraser Hall.

Hours: 10 A. M. to 12 M. and 2 to 4 P. M.

WILLIAM H. CARRUTH, PH. D., Vice President of the Faculties.

EDWARD E. BROWN, Secretary and Purchasing Agent.

Room 105, Fraser Hall.

Hours: 8:30 A. M. to 12:30 P. M. and 2 to 5 P. M.

GEORGE O. FOSTER, A. B., Registrar.

Room 109, Fraser Hall.

Hours: 8 A. M. to 12 M. and 2 to 5 P. M.

WILLIAM H. JOHNSON, A. M., High-school Visitor.

Room 113, Fraser Hall.

Hours: Mondays and Saturdays, 9 A. M. to 12 M. and 2 to 4 P. M.

EBEN F. CROCKER, Superintendent of Buildings and Grounds.

Room 201, Repair Shop.

### THE SCHOOLS.

FRANK W. BLACKMAR, PH. D., Dean of the Graduate School.

Room 108, Fraser Hall.

Hours: 8 to 11 A. M.

OLIN TEMPLIN, A. M., Dean of the College of Liberal Arts and Sciences.

Room 102, Fraser Hall.

Hours: 9:15 A. M. to 12:15 P. M.

FRANK O. MARVIN, A. M., Dean of the School of Engineering.

Room 112, Engineering Building.

Hours: 9 A. M. to 12 M.

JAMES W. GREEN, A. M., Dean of the School of Law.

Room 101, Green Hall.

Hours: 9 to 10 A. M.

CHARLES S. SKILTON, A. B., Dean of the School of Fine Arts.

North College.

Hours: 11 A. M. to 12 M. and 2:30 to 5 P. M.

LUCIUS E. SAYRE, B. S., PH. M., Dean of the School of Pharmacy.

Room 215, Chemistry and Pharmacy Building.

Hours: 10 to 11 A. M.

SAMUEL J. CRUMBINE, M. D., Dean of the School of Medicine.

MELVIN T. SUDLER, PH. D., M. D., Associate Dean of the School of Medicine.

Room 3, Medical Hall.

Hours: 10:15 A. M. to 12:15 P. M.



GEORGE H. HOXIE,\* M. D., Dean of Clinical Department, School of Medicine.

ARTHUR T. WALKER, PH. D., Director of the Summer Session.

Room 202, Fraser Hall.

Hours: Tuesdays and Thursdays, first semester, 9 to 10 A. M.

Mondays, Wednesdays and Fridays, second semester, 9 to 10 A. M.

RICHARD R. PRICE, A. M., Director of University Extension Division.

Room 117, Fraser Hall.

Hours: 8 A. M. to 12 M. and 2 to 5 P. M.

CHARLES H. JOHNSTON, PH. D., Dean of the School of Education.

Room 113, Fraser Hall.

Hours: 10 A. M. to 12 M., first semester.

10 A. M. to 11 A. M., second semester.

2 P. M. to 3 P. M., Monday, Tuesday, Wednesday, second semester.

3:30 P. M. to 4 P. M., first semester.

### LIBRARY AND GYMNASIUM.

CARRIE M. WATSON, A. B., Librarian.

JAMES NAISMITH, A. B., M. D., Director of Gymnasium.

### THE MUSEUMS.

FRANK STRONG, PH. D., *ex officio*, Director of the Museums.

LEWIS L. DYCHE, A. M., M. S., Curator of the Mammals, Birds, and Fishes.

CLARENCE E. MCCLUNG, PH. D., Curator of the Vertebrate Paleontological Collections.

SAMUEL J. HUNTER, A. M., Curator of the Entomological Collections.

ERASMUS HAWORTH, PH. D., Curator of the Geological and Mineralogical Collections.

WILLIAM C. STEVENS, M. S., Curator of the Herbarium.

ALEXANDER M. WILCOX, PH. D., Curator of the Classical Museum.

### UNIVERSITY GEOLOGICAL SURVEY OF KANSAS.

FRANK STRONG, PH. D., *Director, ex officio*.

ERASMUS HAWORTH, PH. D., State Geologist.

EDGAR H. S. BAILEY, PH. D., Chemist.

### ENGINEERING EXPERIMENT STATION.

FRANK STRONG, PH. D., President.

FRANK O. MARVIN, A. M., Director, Civil Engineering.

EDGAR H. S. BAILEY, PH. D., Chemical Engineering.

ERASMUS HAWORTH, PH. D., Mining Engineering.

PERLEY F. WALKER, M. M. E., Mechanical Engineering.

GEORGE C. SHAAD, E. E., Electrical Engineering.

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\* Resigned.

## UNIVERSITY COUNCIL.

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THE CHANCELLOR OF THE UNIVERSITY, *Chairman.*

WILLIAM CHASE STEVENS, *Secretary.*

Professors and heads of departments of the schools of the University.

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## THE FACULTIES.

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The Faculty of each school is made up of the heads of departments offering work in that school, the professors and associate professors offering courses in it, and the assistant professors and instructors who have been assigned to that Faculty. By a rule of the Board of Regents, only professors and associate professors may be members of more than one Faculty. Teachers of lower rank may, however, give instruction in several schools of the University. In such cases the name of the instructor is printed in the departmental list of each school in which he gives instruction.

Each Faculty is the legal governing body in all matters concerning *exclusively* its own school.

## OFFICERS OF INSTRUCTION AND ADMINISTRATION.

The officers of instruction and administration in the University are divided into the following groups:

PROFESSORS.

ASSOCIATE PROFESSORS.

ASSISTANT PROFESSORS.

INSTRUCTORS AND LECTURERS.

ASSISTANT INSTRUCTORS.

LIBRARIAN AND ASSISTANTS.

BUSINESS AND EXECUTIVE OFFICERS.

### PROFESSORS.

FRANK STRONG, A. B., 1884, A. M., 1893, PH. D., 1897, (Yale); LL. D., 1909, (Baker University). Chancellor of the University, and President of the Faculties, 1902.\*  
(101 F.†) 1345 Louisiana.

WILLIAM HERBERT CARRUTH, A. B., 1880, (University of Kansas); A. M., 1889, PH. D., 1893, (Harvard). Vice President of the Faculties, and Professor of Germanic Languages and Literatures, 1882; 1879.  
(303 F.) 1342 Louisiana.

EPHRAIM MILLER, A. B., 1855, A. M., 1858, PH. D., 1895, (Allegheny). Emeritus Professor of Mathematics and Astronomy, 1910; 1874.

JAMES WOODS GREEN, A. B., 1866, A. M., 1886, (Williams). Dean of the School of Law, and Professor of Law, 1878.  
(101 G.) 637 Tennessee.

\* The date after each title indicates the year of appointment to the present rank; a second date denotes the year of first appointment in the University, when that fact is not indicated by the first date.

† Abbreviations:

B=Blake Hall.

C=Chemistry Building.

D=Dick Building Studios.

E=General Engineering Building.

F=Fraser Hall.

G=Green Hall.

L=Spooner Library.

Min=Mining Building.

M=Medical Hall.

Mu=Museum of Natural History.

N=North College.

RG=Robinson Gymnasium.

S=Snow Hall.

Sh=Fowler Shops.

ML=Mechanical Laboratory.

PP=Power Plant.



- FRANK OLIN MARVIN, A. B., 1871, A. M., 1874, (Allegheny).  
Dean of the School of Engineering, and Professor of Civil  
Engineering, 1882; 1875. (112 E.) 1603 Massachusetts.
- EDGAR HENRY SUMMERFIELD BAILEY, PH. B., 1873, (Yale);  
PH. D., 1883, (Illinois Wesleyan). Professor of Chemistry and  
Metallurgy, and Director of Chemical Laboratories, 1883.  
(214 C.) 1101 Ohio.
- ALEXANDER MARTIN WILCOX, A. B., 1877, PH. D., 1880, (Yale).  
Professor of Greek Language and Literature, 1885.  
(204 F.) 1605 Vermont.
- LUCIUS ELMER SAYRE, B. S., 1897, (University of Michigan);  
PH. G., 1866, PH. M., 1896, (Philadelphia). Dean of the  
School of Pharmacy, and Professor of Pharmacy, 1885.  
(215 C.) 1323 Ohio.
- LEWIS LINDSAY DYCHE,\* A. B., B. S., 1884, A. M., 1886, M. S.,  
1888, (University of Kansas). Professor of Systematic  
Zoölogy, 1889; 1883. Pratt, Kan.
- FRANK WILSON BLACKMAR, PH. D., 1889, (Johns Hopkins).  
Dean of the Graduate School, and Professor of Sociology and  
Economics, 1889. (108 F.) 1115 Ohio.
- CHARLES GRAHAM DUNLAP, A. B., 1883, A. M., 1899, (Ohio Wes-  
leyan); LITT. D., 1892, (Princeton). Professor of English  
Literature, 1890; 1887. (301 F.) 925 Kentucky.
- CARL ADOLPH PREYER, (Vienna), MUS. D., 1909, (Baker Univer-  
sity). Professor of Piano, Counterpoint, Canon, and Fugue,  
1892. (N.) 2014 Massachusetts.
- OLIN TEMPLIN, A. B., 1886, A. M., M. S., 1890, (University of  
Kansas). Dean of the College of Liberal Arts and Sciences,  
and Professor of Philosophy, 1893; 1884.  
(102 F.) 1025 Missouri.
- EDWIN MORTIMER HOPKINS, A. B., 1888, PH. D., 1894, (Prince-  
ton). Professor of Rhetoric and English Language, 1893;  
1889. (201 F.) 1201 Tennessee.
- FRANK HEYWOOD HODDER, A. B., 1883, PH. M., 1883, (University  
of Michigan). Professor of American History and Political  
Science, 1893; 1891. (5 G.) 1115 Louisiana.
- ERASMUS HAWORTH, B. S., 1881, M. S., 1884, (University of Kan-  
sas); PH. D., 1888, (Johns Hopkins). Professor of Geology,  
Mineralogy, and Mining, and Superintendent of the Geological  
Survey, 1894; 1892. (Min.) 1503 Massachusetts.

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\* On leave of absence as State Fish and Game Warden.

- ARTHUR TAPPAN WALKER, A. B., 1887, (University of New York City); A. M., 1892, (Vanderbilt); PH. D., 1898, (University of Chicago). Director of the Summer Session, and Professor of Latin Language and Literature, 1897. (202 F.) 1645 Louisiana.
- WILLIAM CHASE STEVENS, B. S., 1885, M. S., 1893, (University of Kansas). Professor of Botany, 1899; 1889.  
(201 S.) 1121 Louisiana.
- ARVIN SOLOMON OLIN, A. B., 1892, (Ottawa University); A. M., 1894, (University of Kansas). Professor of Education, 1899; 1893.  
(106 F.) 1144 Louisiana.
- WILLIAM ALEXANDER GRIFFITH, (Academy Julien, Paris). Professor of Drawing and Painting, 1899.  
(302 S.) 1200 Louisiana.
- EUGENIE GALLOO, B. L., 1892, (University of Michigan); Académie de Paris, Brevet, 1881, Sorbonne, 1884, (University of France); A. M., 1895, (University of Kansas). Professor of Romance Languages and Literatures, 1900; 1892.  
(304 F.) 1324 Louisiana.
- WILLIAM LIVESEY BURDICK, A. B., 1882, A. M., 1884, (Wesleyan); PH. D., 1885, (Grant); LL. B., 1898, (Yale). Professor of Law, 1902; 1898.  
(206 G.) 916 Kentucky.
- CHARLES SANFORD SKILTON, A. B., 1889, (Yale). Dean of the School of Fine Arts, and Professor of Musical Theory and Organ, 1903.  
(N.) 1318 Louisiana.
- CHARLES EDWARD HUBACH, (Graduate of the New England Conservatory of Music; Sbriglia, Paris). Professor of Voice, 1903.  
(N.) West City Limits.
- JOHN ELOF BOODIN, A. B., 1895, A. M., 1896, (Brown); PH. D., 1899, (Harvard). Professor of Philosophy, 1904.  
(106 F.) Eldridge House, Room 38.
- IDA HENRIETTA HYDE, B. S., 1891, (Cornell); PH. D., 1896, (Heidelberg, Germany). Professor of Physiology, 1905; 1899.  
(102 M.) 1126 Louisiana.
- WILLIAM HAMILTON JOHNSON, A. B., 1885, A. M., 1892, (University of Kansas). High-school Visitor, and Professor of Education, 1905; 1903.  
(113 F.) 1201 Oread Ave.
- GEORGE HOWARD HOXIE,\* A. B., 1893, A. M., 1896, (Union University); M. D., 1901, (University of Zurich). Dean of the Clinical Department of the School of Medicine, and Professor of Internal Medicine, 1905; 1902.  
Rosedale, Kan.

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\* Resigned.

JAMES NAISMITH, A. B., 1887, (McGill University); M. D., 1898, (Gross Medical College). Professor of Physical Education, and Chapel Director, 1906; 1898. (RG.) 1635 Massachusetts.

MARSHALL ALBERT BARBER, A. B., 1891, (University of Kansas); A. M., 1894, (Harvard). Professor of Bacteriology and Pathology, and Director of the Clinical Laboratories, 1906; 1895. 1220 Louisiana.

SAMUEL JOHN HUNTER, A. B., A. M., 1893, (University of Kansas). Professor of Entomology, 1906; 1896. (102 S.) 1309 Ohio.

WILLIAM EDWARD HIGGINS, B. S., 1888, LL. B., 1894, (University of Kansas). Professor of Law, 1906; 1899. (205 G.) 1238 Ohio.

CLARENCE ERWIN MCCLUNG, PH. G., 1892, A. B., 1896, A. M., 1898, PH. D., 1902, (University of Kansas). Professor of Zoölogy, 1906; 1897. (206 S.) 1209 Ohio.

PERLEY F. WALKER, B. M. E., 1896, (University of Maine); M. M. E., 1901, (Cornell). Professor of Mechanical Engineering, 1906; 1905. (211 E.) 1301 Ohio.

MERVIN TUBMAN SUDLER, PH. D., 1899, (Johns Hopkins); M. D., 1901, (College of Physicians and Surgeons, Baltimore). Associate Dean of the School of Medicine, and Professor of Surgery, 1911; 1905. (3 M.) 1037 Tennessee.

ROBERT KENNEDY DUNCAN, A. B., 1892, (Toronto). Director of Industrial Research, with rank of Professor, 1910; 1906.

CARL LOTUS BECKER, B. L., 1896, PH. D., 1907, (University of Wisconsin). Professor of European History, 1908; 1902. (5 G.) 1144 Indiana.

L. D. HAVENHILL, PH. C., 1893, PH. M., 1894, (University of Michigan); B. S., 1903, (University of Kansas). Professor of Pharmacy, 1908; 1899. (1 C.) 1539 Vermont.

FREDERICK EDWARD KESTER, M. E., 1895; (Ohio State University); A. M., 1899, PH. D., 1905, (Cornell). Professor of Physics, 1909. (204 B.) 805 Tennessee.

GEORGE CARL SHAAD, B. S., 1900, M. S., 1905, (Penn. State College). Professor of Electrical Engineering, 1909. (15 E.) 1622 New Hampshire.

RICHARD REES PRICE, A. B., (University of Kansas, 1897; Harvard, 1900); A. M., 1901, (Harvard). Director of University Extension with rank of Professor, 1909. (113 F.) 1316 Vermont.



CHARLES MOREAU HARGER, L. H. D., 1901, (Bethany); LITT. D., (Baker University). Director of the Department of Journalism, with rank of Professor, 1909; 1905.

(20 F.) Abilene, Kan.

CHARLES HUGHES JOHNSTON, A. B., 1898, (University of North Carolina); A. M., 1903, PH. D., 1905, (Harvard). Professor of Education, and Dean of the School of Education, 1910.

(113 F.) 1240 Mississippi.

EDNA D. DAY, B. S., 1896; M. S., 1897, (University of Michigan); PH. D., 1908, (University of Chicago). Professor of Home Economics, 1910.

(10 F.) 1345 Tennessee.

JOHN WESLEY YOUNG, A. B., 1899, (Ohio State University); A. M., 1901, PH. D., 1904, (Cornell University). Professor of Mathematics, 1910.

(104 B.) 1702 Massachusetts.

HENRY CLINTON HILL, A. B., 1888, (Bowdoin); LL. B., 1899, (University of Michigan). Professor of Law, 1910.

(203 G.) 1026 Ohio.

SAMUEL JAY CRUMBINE, M. D., 1889, (Cincinnati); Dean of the School of Medicine.

MONTROSE PALLEN MCARDLE. Professor of Architecture, 1910.

JOHN FAIRBAIRN BINNIE, A. M., 1882, B. M., (University of Aberdeen). Professor of Surgery, and Chief of the Surgical Staff of the Eleanor Taylor Bell Memorial Hospital.

Argyle bldg., Kansas City, Mo.

EDWARD G. BLAIR, A. B., 1887, (University of Kansas); M. D., 1889, (Columbia). Clinical Professor of Surgery.

Bryant bldg., Kansas City, Mo.

JACOB BLOCK, M. D., 1879, (Medical College of Ohio). Professor of Genito-urinary Surgery.

Argyle bldg., Kansas City, Mo.

JULIUS BRUEHL, M. D., 1883, (University of Würzburg). Clinical Professor of Internal Medicine.

New Ridge bldg., Kansas City, Mo.

WILLIAM J. FRICK, M. D., 1888, (Kansas City Medical College). Clinical Professor of Surgery.

Keith & Perry bldg., Kansas City, Mo.

S. S. GLASSCOCK, M. D., 1887, (Rush Medical College). Professor of Neurology.

Portsmouth bldg., Kansas City, Kan.

GEORGE M. GRAY, M. D., 1879, (Kansas City Medical College). Clinical Professor of Surgery.

Portsmouth bldg., Kansas City, Kan.

JEFFERSON DAVIS GRIFFITH, M. D., 1871, (University of the City of New York). Clinical Professor of Surgery.

Kansas City, Mo.

GEORGE F. HAMEL, PH. G., 1880, (St. Louis College of Pharmacy); M. D., 1888, (Beaumont Hospital Medical College). Clinical Professor of Surgery.

Altman bldg., Kansas City, Mo.

HENRY O. HANAWALT, M. D., 1873, (Medical College of Ohio). Professor of Neurology, and Head of the Department.

Shukert bldg., Kansas City, Mo.

PETER D. HUGHES, A. M., 1890, (Taylor University); M. D., 1884, (Fort Wayne College of Medicine). Clinical Professor of Surgery.

720 Ann Ave., Kansas City, Kan.

GEORGE CLARK MOSHIER,\* M. D., 1882, (Kentucky School of Medicine). Professor of Obstetrics, and Head of the Department.

Bryant bldg., Kansas City, Mo.

FRANKLIN E. MURPHY, 1893, (University of Pennsylvania). Professor of Internal Medicine.

Deardorff bldg., Kansas City, Mo.

JOHN WALTER PERKINS, A. B., 1882, M. D., 1886, (Harvard). Professor of Surgery (Surgical Diagnosis).

Altman bldg., Kansas City, Mo.

JOSEPH E. SAWTELL, M. D., 1886, (College of Physicians and Surgeons, Baltimore). Professor of Rhinologyngology, and Head of the Department.

Bryant bldg., Kansas City, Mo.

EDWARD W. SCHAUFFLER, A. B., 1862, A. M., 1875, (Williams College); M. D., 1868, (Columbia). Clinical Professor of Internal Medicine.

Argyle bldg., Kansas City, Mo.

ROBERT T. SLOAN, A. B., 1883, A. M., 1886, (University of Missouri); M. D., 1884, (Kansas City Medical College). Professor of Internal Medicine, and Head of the Department.

Kansas City, Mo.

PRESTON STERRETT, M. D., 1900, (Ensworth Medical College). Clinical Professor of Internal Medicine.

500 Kansas Ave., Kansas City, Kan.

ISADORE JULIUS WOLF, M. D., 1887, (Munich). Professor of Internal Medicine.

Argyle bldg., Kansas City, Mo.

ANDREW WALTER MCALESTER, JR., A. B., 1902, M. D., 1905, (University of Missouri). Professor of Ophthalmology, 1908.

Bryant bldg., Kansas City, Mo.

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\* Resigned.

CHARLES J. LIDIKAY, M. D., 1894, (University of Louisville).  
Clinical Professor of Ophthalmology, 1908; 1907.

Portsmouth bldg., Kansas City, Kan.

JOHN HENRY OUTLAND, M. D., 1900, (University of Pennsylvania). Clinical Professor of Surgery, 1908.

501 Bryant bldg., Kansas City, Mo.

GEORGE E. BELLOWS, A. B., 1882, A. M., 1885, (Amherst); M. D., 1885, (College of Physicians and Surgeons, New York, now Columbia). Clinical Professor in Ophthalmology.

601-603 Sharp bldg., Kansas City, Mo.

DAVID RITTENHOUSE PORTER, M. D., 1872, (Bellevue Hospital Medical College). Professor Emeritus of Internal Medicine, and Lecturer on Life Insurance, 1909.

Kansas City, Kan.

### ASSOCIATE PROFESSORS.

MILES WILSON STERLING, A. B., 1883, A. M., 1893, (University of Kansas). Associate Professor of Greek, 1901; 1883.

(204 F.) 1129 Louisiana.

RAPHAEL DORMAN O'LEARY,\* A. B., (University of Kansas, 1893; Harvard, 1895). Associate Professor of Rhetoric, 1901; 1896.

(301 F.) 1106 Louisiana.

HANNAH OLIVER, A. B., 1874, A. M., 1888, (University of Kansas). Associate Professor of Latin, 1905; 1890.

(201 F.) 802 Tennessee.

ELMER FRANKLIN ENGEL,\* A. B., 1892, (University of Kansas); A. M., 1898, (Harvard). Associate Professor of German, 1905; 1892.

(103 E.) 1211 Kentucky.

SAMUEL CHARLES EMLEY,\* A. B., 1899, (University of Kansas); M. D., 1902, (Rush Medical College). Associate Professor of Pathology, 1905.

SELDEN LINCOLN WHITCOMB, A. B., 1887, (Grinnell; A. M., 1893, (Columbia)). Associate Professor of English Literature, 1905.

(201 F.) 1026 Ohio.

HAMILTON PERKINS CADY, A. B., 1897, PH. D., 1903, (University of Kansas). Associate Professor of Chemistry, 1905; 1899.

(115 C.) 1535 Kentucky.

MARTIN EVERETT RICE, B. S., 1891, M. S., 1893, (University of Kansas). Associate Professor of Physics and Electrical Engineering, 1906; 1892.

(204 B.) 1223 Vermont.

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\* Absent on leave, 1910-'11.

RALPH WALDO CONE,†, A. B., 1895, (University of Kansas); A. M., 1897, (Harvard). Associate Professor of Sociology and Economics, 1906; 1899.

WILLIAM CHRISTIAN HOAD, B. S., 1898, (University of Kansas). Associate Professor of Civil Engineering, 1906; 1900.  
(209 E.) 1043 Indiana.

JOHN NICHOLAS VAN DER VRIES, A. B., 1896, A. M., 1899, (Hope); PH. D., 1901, (Clark). Associate Professor of Mathematics, 1906; 1901.  
(108 E.) 1644 New Hampshire.

RALPH EMERSON BASSETT, A. B., 1889, A. M., 1890, (Harvard). Associate Professor of Romance Languages, 1906; 1903.  
(103 E.) 746 Ohio.

HERBERT ALLAN RICE, C. E., 1897, (Ohio State University). Associate Professor of Civil Engineering, 1905.  
(202 E.) 1108 Ohio.

B J DALTON, B. C. E., 1890, (University of Kansas). Associate Professor of Civil Engineering, 1906. (118 E.) 1011 Indiana.

CLINTON MASON YOUNG, B. S. in Mining, 1904, E. M., 1909, (Case). Associate Professor of Mining Engineering, 1906.  
(Min.) 1227 Ohio.

RAYMOND ALFRED SCHWEGLER, A. B., 1899, (Brown); A. M., 1907, (Ottawa University). Associate Professor of Education, 1907.  
(106 F.) 1108 Vermont.

FREDERICK HORATIO BILLINGS, A. B., 1896, (Leland Stanford); A. M., 1897, (Harvard); PH. D., 1901, (Munich). Associate Professor of Botany and Bacteriology, 1907.  
(201 S.) 1207 Tennessee.

DAVID LESLIE PATTERSON, B. S., 1895, (Pennsylvania State College). Associate Professor of European History, 1908.  
(5 G.) 1135 Ohio.

HENRY WILBUR HUMBLE, LL. B., 1904, (University of Cincinnati); A. M., 1908, (Cornell). Associate Professor of Law, 1908.  
(202 G.) University Heights.

LOUIS EUGENE SISSON, A. B., 1904, (Leland Stanford); A. M., 1909, (Harvard). Associate Professor of Rhetoric, 1905; 1904.  
(201 F.) 1234 Louisiana.

CLARENCE ADDISON DYKSTRA, A. B., 1903, (University of Iowa). Associate Professor of History, 1909. (5 G.) West Hancock.

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† Resigned.



FRANK EGBERT BRYANT,\* B. L., 1899, A. M., 1901, (University of Michigan); PH. D., 1910, (Harvard). Associate Professor of English Language, 1910; 1902.

ARTHUR JEROME BOYNTON, A. B., 1901, (Harvard); A. M., 1902, (Columbia). Associate Professor of Economics, 1910; 1903.  
(302 F.) 1135 Ohio.

CHARLES HAMILTON ASHTON, A. B., 1887, (Union); A. M., 1893, (Harvard); PH. D., 1909, (Munich). Associate Professor of Mathematics, 1910; 1903.  
(108 E.) 1202 Ohio.

FRANCIS WILLIAM BUSHONG, A. B., 1885, A. M., 1888, (Franklin and Marshall); Sc. D., 1900, (College of Emporia). Associate Professor of Chemistry, 1910; 1905.  
(11 C.) 1609 Vermont.

HAL FOSTER, A. B., 1880, (University of Alabama); M. D., 1882, (University of the City of New York). Associate Professor of Rhinology, 1910; 1905.  
Altman bldg., Kansas City.

WILLIAM FRICK, B. S., 1879, A. M., 1895, (Central Wesleyan); M. D., 1884, (St. Louis Medical College). Associate Professor of Dermatology, and Head of the Department.  
Kansas City, Mo.

DON CARLOS GUFFEY, A. B., 1899, (University of Missouri); M. D., 1905, (University of Pennsylvania). Associate Professor of Obstetrics and Gynecology.  
Bryant bldg., Kansas City, Mo.

ARTHUR E. HERTZLER, M. D., 1894, (Northwestern); PH. D., 1902, (Illinois Wesleyan). Associate Professor of Surgery.  
Bell Hospital, Rosedale, Kan.

EARNEST J. LUTZ, M. D., 1891, (College of Physicians and Surgeons, St. Louis). Associate Professor of Internal Medicine.  
626 Minnesota Ave., Kansas City, Kan.

WILLIAM L. MCBRIDE, M. D., 1901, (Rush Medical College). Associate Professor of Dermatology.  
Bryant bldg., Kansas City, Mo.

ROBERT MCEWEN SCHAUFFLER, A. B., 1893, (Williams College); M. D., 1896, (Columbia). Associate Professor of Surgery.  
Argyle bldg., Kansas City, Mo.

JOHN N. SCOTT, PH. G., 1887, (University of Kansas); M. D., 1896, (University Medical College, Kansas City). Associate Professor of Therapeutics, and Head of the Department.  
New Ridge bldg., Kansas City, Mo.

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\* Died, October 20, 1910.

- WILLIAM KIRK TRIMBLE, M. D., 1900, (Kansas City Medical College). Associate Professor of Clinical Pathology, 1908; 1905.  
Rosedale, Kan.
- HARRY LESLIE CHAMBERS, M. S., 1896, (Lane University); M. D., 1895, (Kansas City Medical College). Adjunct Professor of Hygiene; University Physician, 1909. (RG.) 1126 Tennessee.
- W. F. KUHN, A. M., M. D. Adjunct Professor and Lecturer on the Relation of the State to the Insane.
- SIMON B. LANGWORTHY, M. D. Adjunct Professor of Gynecology.  
Leavenworth, Kan.
- O. M. LONGENECKER, M. D. Adjunct Professor of Therapeutics.
- FREDERIC DANIELS MORSE, A. B., 1862, A. M., 1869, (Amherst); M. D., 1867, (Rush Medical College). Adjunct Professor of the History of Medicine, 1905.  
1041 Tennessee.
- CHRISTIAN B. STEMEN, M. D. Adjunct Professor of Surgery.  
Cor. Sixth and Minnesota Ave., Kansas City, Kan.

### ASSISTANT PROFESSORS.

- FRANK EMERSON WARD, (Northern Indiana Normal School). Superintendent of Fowler Shops and Shop Instruction, 1899; 1889.  
(Sh.) 1236 Oread Ave.
- CHARLES MORGAN STERLING, A. B., 1897, (University of Kansas). Assistant Professor of Pharmacognosy, 1901.  
(209 C.) 923 Indiana.
- ALBERTA LINTON CORBIN,\* A. B., 1893, (University of Kansas); Ph. D., 1902, (Yale). Assistant Professor of German, 1901.  
(303 F.) 1108 Ohio.
- FREDERICK NEWTON RAYMOND, A. B., 1896, (University of Kansas); A. M., 1897, (Columbia). Assistant Professor of Rhetoric, 1901.  
(107 E.) 811 Mississippi.
- MARGARET LYNN, B. S., 1889, (Tarkio); A. M., 1900, (University of Nebraska). Assistant Professor of English Literature, 1901.  
(301 F.) 1244 Louisiana.
- GEORGE JUSSEN HOOD, B. S., 1902, (University of Kansas). Assistant Professor of Mechanical Drawing, 1902.  
(302 E.) University Heights.
- CHARLES IVES CORP,† B. S., 1903, (University of Kansas). Assistant Professor of Mechanical Engineering, 1904.  
(10 E.) ———.

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\* Leave of absence, first semester, 1910.

† Leave of absence, 1910-'11.

- EDWIN FISKE STIMSON, B. S., 1890, (University of Kansas). Assistant Professor of Physics, 1905; 1901.  
(202 F.) 929 Indiana.
- MARY COOLIDGE FISH, (Sargent Normal School of Physical Training). Assistant Professor of Physical Education, 1905. 1903.  
(RG.) 1215 Oread Ave.
- WILLIAM JACOB BAUMGARTNER, A. B., 1900, A. M., 1901, (University of Kansas). Assistant Professor of Zoölogy and Histology, 1905; 1904.  
(206 S.) 1601 Tennessee.
- HENRY OTTO KRUSE, A. B., 1894, A. M., 1903, (University of Kansas). Assistant Professor of German, 1905; 1904.  
(303 F.) 1538 Kentucky.
- ELISE NUEN SCHWANDER,\* A. B., 1898, (University of Kansas). Assistant Professor of Romance Languages, 1905.  
(304 F.) ———.
- WILLIAM CLARENCE LANDSDON, A. B., 1888, (Kansas Normal College). Manager of Athletics, 1905.  
(RG.) 709 Mississippi.
- CHARLES HENRY GRAY, B. L., 1895, M. L., 1896, (University of Michigan); PH. D., 1904, (University of Chicago). Assistant Professor of English Literature, 1905.  
(301 F.) 1000 Ohio.
- JAMES DYNAN NEWTON, A. B., 1891, A. M., 1895, (Holy Cross); M. E., 1895, (Cornell). Assistant Professor of Civil Engineering, 1906.  
(302 E.) 1536 New Hampshire.
- HERBERT WILLIAM EMERSON, PH. C., 1901, B. S., 1902, (University of Michigan). Assistant Professor of Pharmacy, 1906; 1903.  
(105 C.) University Heights.
- CHARLES COCHRAN, (University of Colorado). Assistant Professor of Mechanical Drawing, 1906.  
(302 E.) 1336 Kentucky.
- LEON NELSON FLINT, A. B., 1897, (University of Kansas). Assistant Professor of Journalism, 1906.  
(112 F.) Cor. Missouri and Quincy.
- FRANK EVERETT JONES, (Armour Institute). Assistant Professor of Carpentry and Pattern Making, 1903.  
(Sh.) 1324 New Hampshire.
- CLARENCE CORY CRAWFORD, A. B., 1903, A. M., 1904, (University of Kansas); PH. D., 1906, (University of Wisconsin). Assistant Professor of European History, 1907.  
(5 G.) 1600 Kentucky.

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\* Leave of absence, 1910-'11.

EARL WALTER MURRAY, A. B., 1904, (University of Kansas).  
Assistant Professor of Latin, 1907. (202 F.) 1601 Louisiana.

HENRY LOUIS JACKSON, B. S., 1905, (Massachusetts Institute of  
Technology). Assistant Professor of Chemistry, in Charge of  
Foods, 1907. (308 C.) 917 Maine.

JAMES EDWARD TODD, A. B., 1867, A. M., 1870, (Oberlin). As-  
sistant Professor of Geology and Mineralogy, 1907.  
(Min.) 1224 Rhode Island.

PRESSLEY ADAMS GLENN, A. B., 1898, (University of Kansas);  
A. M., 1901, (Highland University). Assistant Professor of  
Entomology, 1907. (101 S.) 1415 Kentucky.

HARRIET GREISSINGER, MUS. B., 1895, (University of Kansas).  
Assistant Professor of Piano, 1907; 1902.  
(N.) 1244 Louisiana.

JAMES ANDREW CAMPBELL, A. B., 1901, A. M., 1906, (University  
of Michigan). Assistant Professor of German, 1907; 1906.  
(303 F.) 1704 Tennessee.

BLANCHE LYONS, (New England Conservatory of Music). As-  
sistant Professor of Voice, 1907; 1904. (N.) 940 Kentucky.

ALFRED HIGGINS SLUSS, B. S. in Mech. Eng., 1901, (University  
of Illinois). Assistant Professor of Mechanical Engineering,  
1908. (305 E.) 1133 Kentucky.

WILLIAM SAVAGE JOHNSON, A. M., 1900, PH. D., 1905, (Yale).  
Assistant Professor of English Literature, 1908.  
(301 F.) 1135 Ohio.

WILLIAM PHILIP WARD, A. B., 1906, (Western Reserve Univer-  
sity). Assistant Professor of Romance Languages, 1908.  
(304 F.) 819 Kentucky.

MAUDE BEATRICE COOKE, (University of Kansas); (New Eng-  
land Conservatory of Music, Berlin). Assistant Professor of  
Piano, 1907; 1904. (N.) 917 Kentucky.

HARRY GARDNER, B. S. in General Engineering, 1905, (University  
of Wisconsin). Assistant Professor of Sanitary Engineering,  
1909. (209 E.) 940 Maine.

ROY LEE MOODIE, A. B., 1905, (University of Kansas); PH. D.,  
1908, (University of Chicago). Assistant Professor of Zoöl-  
ogy, 1909; 1908. (206 S.) 1845 Larnard Ave.

DAVID CAMP ROGERS, A. B., 1899, (Princeton); A. M., 1902,  
PH. D., 1903, (Harvard). Assistant Professor of Psychology,  
1909. (106 F.) 1234 Mississippi.



- EDWARD MAURICE BRIGGS, A. B., 1904 (University of Nebraska); A. M., 1908, (University of Kansas). Assistant Professor of German, 1910; 1906. (103 E.) 1234 Oread Ave.
- ALBERT MOREY STURTEVANT, A. B., 1899, A. M., 1901, PH. D., 1905, (Harvard). Assistant Professor of German, 1910; 1908. (303 F.) 924 Louisiana.
- GEORGE NATHANIEL WATSON, A. B., 1904, B. S., PH. C., 1908, (University of Michigan). Assistant Professor of Pharmacy, 1910; 1909. (3 C.) 735 Missouri.
- EDWARD TILLOTSON, PH. D., 1909, (Yale). Holophane Fellow in Industrial Research, with rank of Assistant Professor, 1909. 1541 Tennessee.
- J. F. MACKEY, PH. D., 1908, (Toronto). Ash Grove Fellow in Industrial Research, with rank of Assistant Professor, 1909. 1428 Tennessee.
- L. V. REDMAN, PH. D., (Toronto). Julius Karpen Fellow in Industrial Research, with rank of Assistant Professor, 1910. 1803 Massachusetts.
- WILLIAM HENRY TWENHOFEL, A. B., 1904, (Lebanon); A. B., 1908, A. M., 1910, (Yale). Assistant Professor of Geology, 1910. (103 Min.) 1515 Vermont.
- ARTHUR LESLIE OWEN, A. B., 1906, (University of Vermont); A. M., 1908, (University of Illinois); Assistant Professor of Romance Languages, 1910. (304 F.) 933 Vermont.
- HOMER WALKER JOSSELYN, A. B., 1905, A. M., 1910, (University of Michigan). Assistant Professor of Education, 1910. (113 F.) 1625 Louisiana.
- JOHN PAUL TRICKEY, B. S., 1909, (New Hampshire State College). H. K. Elston Fellow in Industrial Research, with rank of Assistant Professor, 1910. (106 C.) 1803 Massachusetts.
- RICHARD EVERINGHAM SCAMMON, A. B., 1904, A. M., 1906, (University of Kansas); PH. D., 1910, (Harvard). Assistant Professor of Anatomy and Zoölogy, 1910. (M.) 1284 Mississippi.
- ULYSSES GRANT MITCHELL, A. B., 1906, A. M., 1907, (University of Kansas); PH. D., 1910, (Princeton). Assistant Professor of Mathematics, 1910. (203 F.) 1240 Rhode Island.
- ARTHUR DUNN PITCHER, A. B., 1906, A. M., 1907, (University of Kansas); PH. D., 1910, (Chicago). Assistant Professor of Mathematics, 1910. (108 E.) 325 Indiana.

- MARION BALLANTYNE WHITE, PH. B., 1893, (University of Michigan); A. M., 1906, (University of Wisconsin); PH. D., 1910, (University of Chicago). Assistant Professor of Mathematics, 1910.  
(203 F.) 1108 Ohio.
- LULU GARDNER, A. B., 1905, (University of Kansas). Assistant Professor of Rhetoric, 1910.  
(201 F.) 407 W. Hancock.
- HELEN GAILE JONES,\* PH. B., 1900, (De Pauw). Assistant Professor of German, 1910.  
(311 F.) 1108 Tennessee.
- HERMAN CAMP ALLEN, A. B., 1904, (McPherson College); A. M., 1905, (University of Kansas). Assistant Professor of Chemistry, 1910.  
(204 C.) 808 Mississippi.
- EDGAR LEMUEL TAGUE, A. B., A. M., 1908, (University of Kansas). Assistant Professor of Chemistry, 1910.  
(310 C.) 1139 Tennessee.
- WILLIAM WATSON DAVIS, B. S., 1903, M. S., 1904, (Alabama Polytechnic); A. M., 1905, (Columbia). Assistant Professor of American History and Political Science, 1910.  
(5 G.) 1135 Ohio.
- GERHARD ADAM GESELL, A. B., 1908, (University of Wisconsin). Assistant Professor of Public Speaking, 1910.  
(501 F.) 1332 Louisiana.
- VICTOR EMANUEL HELLEBERG, A. B., 1883, (Yale); LL. B., 1885, (Cincinnati). Assistant Professor of Sociology, 1910.  
(108 F.) 1720 Louisiana.
- ELIAS BRANSEN COWGILL, B. PH., 1869, A. M., 1885, (State University of Iowa). Assistant in Journalism and University Extension, 1909.  
(117 F.) 1146 Tennessee.
- HOWARD ARCHIBALD HUBBARD, A. B., 1904, A. M., 1906, (Ohio Wesleyan). Assistant Professor of Economics, 1911.  
(108 F.) 913 Indiana.
- WILLIAM OLIVER HAMILTON, A. B., 1898, (William Jewell College). Assistant Professor of Physical Education, 1911; 1909.  
(R.) 1134 Mississippi.
- RALPH ARTHUR SHERWIN, B. S., (Dartmouth). Assistant Professor of Physical Education, 1911.
- JOHN G. HAYDEN, B. S., 1902, (University of Chicago); M. D., 1904, (Rush). Assistant Professor of Surgery, 1909.  
Argyle bldg., Kansas City, Mo.

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\* Appointed for first semester, 1910-'11.

- MAX GOLDMAN, M. D., 1901, (Kansas City Medical College). Assistant Professor of Pediatrics. Century bldg., Kansas City, Mo.
- JESSE E. HUNT, M. D., 1902, (Western Reserve University). Assistant Professor of Pediatrics. Argyle bldg., Kansas City, Mo.
- HENRY H. LOOK, M. D., 1898, (Marion Sims College, St. Louis). Assistant Professor of Ophthalmology.  
Altman bldg., Kansas City, Mo.
- RUSSELL A. ROBERTS, A. B., 1881, A. M., 1886, (Marysville [Tenn.] College); M. D., 1887, (Medical College of Indiana). Assistant Professor of Surgery (Rectal Surgery).
- ANDREW L. SKOOG, M. D., 1902, (Northwestern). Assistant Professor of Neurology, 1909.  
Argyle bldg., Kansas City, Mo.
- WALTER S. SUTTON, A. B., 1900, A. M., 1901, (University of Kansas); M. D., 1907, (College of Physicians and Surgeons). Assistant Professor of Surgery, 1909.  
Argyle bldg., Kansas City, Mo.
- EDWARD H. THRAILKILL, M. D., 1890, (Kansas City Medical College). Assistant Professor of Surgery (Rectal Surgery).
- D. W. BASHAM, M. D., Wichita, Kan. Lecturer on Surgery.
- CLAY COBURN, M. D., Kansas City, Kan. Lecturer on State Medicine.
- F. M. DAILEY, M. D., Beloit, Kan. Lecturer on Professional Ethics.
- JOHN A. DILLON, M. D., Larned, Kan. Lecturer on Dental Surgery.
- O. J. FURST, M. D., Peabody, Kan. Lecturer on Climatology.
- W. S. HARVEY, M. D., Salina, Kan. Lecturer on Professional Ethics.
- CHARLES S. HUFFMAN, M. D., Columbus, Kan. Lecturer on State Medicine.
- M. F. JARRETT, M. D., Fort Scott, Kan. Lecturer on the Correction of Ocular Defects.
- RALPH A. LIGHT, M. D., Chanute, Kan. Lecturer on the Basis of Right of the State to Restrict the Right of Practice.
- B. F. MORGAN, M. D., Clay Center, Kan. Lecturer on Anesthetics.

R. J. MORTON, M. D., Green, Kan. Lecturer on Exophthalmic Goitre.

J. E. OLDHAM, M. D., Wichita, Kan. Lecturer on Surgery.

CLIFFORD C. NESSELRODE, M. D., Kansas City, Kan. Lecturer on Surgical Anatomy.

### INSTRUCTORS.

EUGENE SMITH, M. D., 1876, (Rush). Demonstrator in Anatomy, 1903. (1 M.) 718 Kentucky.

LALIA VIOLA WALLING, A. B., 1905, A. M., 1907, (University of Kansas). Instructor in Physiology, 1908; 1905. (104 M.) 945 Connecticut.

FLORENCE HEDGER, A. B., 1904, (University of Kansas). Instructor in Chemistry, 1908; 1907. (219 C.) 1605 Rhode Island.

ESTHER WILSON, A. B., 1901, A. M., 1902, (University of Kansas). Instructor in German, 1908. (303 F.) 1135 Ohio.

NADINE NOWLIN, A. B., A. M., 1903, (University of Kansas). Instructor in Zoölogy, 1909; 1906. (206 S.) 1144 Indiana.

MAY GARDNER, A. B., 1897, (University of Kansas). Instructor in French, 1909. (103 E.) 627 Connecticut.

WORT S. MORSE, (Brussels Conservatory). Instructor in Violin, 1909. (N.) 2329 Jackson Ave., Kansas City, Mo.

CHARLES BURTON ROOT. Instructor in Physical Education, 1909. (R.) 1726 Kentucky.

FRANK ULYSSES GRANT AGRELIUS,\* A. B., 1906, A. M., 1908, (University of Kansas). Instructor in Botany, 1909; 1908. (208 S.) 1133 Rhode Island.

OLIVE MAY GILBREATH, A. B., 1906, (Wellesley); A. M., 1908, (University of Michigan). Instructor in Rhetoric, 1909. (201 F.) 1108 Ohio.

HENRY JOHN BRODERSON, A. B., 1909, (University of Nebraska). Instructor in Chemistry, 1909. (214 C.) 720 Indiana.

ROBERT STANLEY FORSYTHE, B. L., 1908, (Lincoln); A. M., 1909, (Columbia). Instructor in Rhetoric, 1909. (107 E.) 819 Kentucky.

CALVERT JOHNSON WINTER, PH. B., 1905, (Hiram College). Instructor in Romance Languages, 1909. (304 F.) 1230 Oread Ave.

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\* Resigned February 1, 1911.



ALICE WINSTON, A. B., 1898, A. M., 1903, (University of Chicago). Instructor in Rhetoric, 1909.

(201 F.) 1620 Massachusetts.

HOWARD ASHLEY PARKER. Instructor in Civil Engineering, 1909.

(306 E.) 1011 Indiana.

WILLIAM EBEN SCHULTZ, A. B., 1906, (Christian College); A. M., 1909, (Yale). Instructor in Rhetoric, 1909.

(107 E.) 945 Vermont.

ARTHUR BOWES FRIZELL, A. B., 1893, A. M., 1900, (Harvard). Instructor in Mathematics, 1909.

(108 E.) 940 Indiana.

MARIA LEVERING BENSON, A. B., 1900, (Newcomb). Instructor in Design and Ceramics, 1909.

(302 S.) 1126 Louisiana.

CLARENCE ANTHONY JOHNSON, B. S., 1906, (University of Nebraska). Instructor in Electrical Engineering, 1909; 1908.

(15 E.) 932 Maine.

GEORGE W. SPINDLER, A. B., 1900, A. M., 1908, (University of Indiana). Instructor in German, 1909.

(303 F.) 1314 Tennessee.

ANA JULE ENKE, PH. B., 1905, (University of Chicago). Instructor in Spanish, 1909.

(304 F.) 1220 Ohio.

BERT C. FRICHOT, B. S., 1909, (University of Kansas). The Borax Fellow in Industrial Research, with rank of Instructor, 1909.

1541 Tennessee.

EDWARD RAY WEIDLEIN, A. B., 1909, A. M., 1910, (University of Kansas). Stubbs-Grenfell Fellow in Industrial Research, with rank of Instructor, 1910.

19 W. Adams.

ROSE RUTH MORGAN, A. B., 1894, A. M., 1895, (University of Kansas). Instructor in English, 1910.

(201 F.) 1420 Kentucky.

EDWARD ALBERT WHITE, B. S., 1908, (University of Kansas). Instructor in Mechanical Engineering, 1910.

(10 E.) 945 Illinois.

WARD HANCE COOK, A. B., 1909, A. M., 1910, (University of Kansas). Instructor in Zoölogy, 1910.

(206 S.) 19 W. Adams.

BENJAMIN FRANKLIN STELTER, A. B., 1905, A. M., 1908, (University of Kansas). Instructor in English, 1910.

(107 E.) 1201 Tennessee.

THEODORE TOWNSEND SMITH, A. B., 1907, A. M., 1908, (Harvard). Instructor in Physics, 1910.

(202 B.) 815 Indiana.

- AMIDA STANTON, A. B., 1904, (University of Kansas). Instructor in Romance Languages, 1910. (308 F.) 20 Learned Ave.
- EUGENE DUNLAP CAMPBELL, A. B., 1909, (Washburn College). Instructor in Philosophy, 1910. (106 F.) 1220 Louisiana.
- CLARENCE ADELBERT NASH, A. B., 1908, (Cooper College), A. M., 1910, (University of Kansas). Instructor in Chemistry, 1910. (214 C.) 1332 Louisiana.
- CLARA PRICE NEWPORT, A. B., 1903, (Swarthmore); PH. D., 1908, (University of Wisconsin). Instructor in German, 1910. (303 F.) 1245 Louisiana.
- ELI ALLEN BERKLEY, (Oshkosh State Normal); (University of Wisconsin). Instructor in Forging, 1910. (3 Sh.) 1340 Ohio.
- CLIFFORD CAUDY YOUNG, A. B., 1910, (University of Kansas). Instructor in Chemistry, 1910. (302 C.) 115 E. Quincy.
- ALLEN ANDERS SEIPT, A. B., 1900, A. M., 1903, PH. D., 1906, (University of Pennsylvania). Instructor in German, 1910. (303 F.) 718 W. Elliott.
- GRORGE WELLMAN HESS, A. B., 1906, (Kalamazoo College). Instructor in Mathematics, 1910. (E.) 1501 Rhode Island.
- FLOYD CARLTON DOCKERAY, A. B., 1907, A. M., 1909, (University of Michigan). Instructor in Psychology, 1910. (103 S.) 1825 Barker Ave.
- NATHAN THOMAS VEATCH, JR., B. S., 1909, (University of Kansas). Instructor in Civil Engineering, 1910. (209 E.) 1043 Indiana.
- HELEN MAUD CLARKE, A. B., 1903, A. M., 1907, (University of Kansas); PH. D., 1910, (Cornell). Instructor in Correspondence Study, 1910. (17 F.) 721 Illinois.
- GRACE MIRIAM CHARLES, PH. D., 1910, (University of Chicago). Instructor in Botany, 1911. (201 S.) 1215 Oread Ave.
- JOSEPH COLBERT MCCANLES, B. S., 1907, (Kansas Christian College); LL. B., 1909, (University of Kansas). Instructor in Band Instruments, 1910. 1405 Rhode Island.
- MAUD MILLER, MUS. B., 1898, (University of Kansas). Instructor in Piano, 1908; 1904. (D.) 1244 Louisiana.
- GERTRUDE MOSSLER. Instructor in Elocution, 1908. (D.) 703 Indiana.
- ANNA LOUISE SWEENEY, MUS. B., 1906, (University of Kansas). Instructor in Piano, 1909. (D.) 711 Rhode Island.

- LOUISE WIEDEMANN, MUS. B., 1897, (University of Kansas).  
Instructor in Piano, 1908; 1904. (D.) 835 Massachusetts.
- FAY P. CLARK, M. D., 1898, (College of Physicians and Surgeons,  
Kansas City). Clinical Instructor in Electrotherapeutics.  
1247 Central Ave., Kansas City, Kan.
- RICHARD C. LOWMAN, M. D., 1890, (Kansas City Medical Col-  
lege). Clinical Instructor in Surgery.  
Auditorium bldg., Kansas City, Kan.
- JOHN W. MILLER, M. D., 1896, (Kansas City Medical College).  
Clinical Instructor in Internal Medicine.  
6 North James, Kansas City, Kan.
- ZACHARIAH NASON, M. D., 1888, (College of Physicians and Sur-  
geons, Baltimore). Clinical Instructor in Obstetrics.  
Packard and Osage, Kansas City, Kan.
- AMBROSE TALBOT, A. B., 1881, M. D., 1885, (Harvard). Clinical  
Instructor in Internal Medicine. Kansas City, Mo.
- PETER THOMAS BOHAN, M. D., 1900, (Rush Medical College).  
Instructor in Internal Medicine.  
1208 Wyandotte, Kansas City, Mo.
- CLARENCE B. FRANCISCO, M. D., 1907, (University of Kansas).  
Instructor in Surgery. Rosedale, Kan.

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 ASSISTANT INSTRUCTORS.

- LARRY M. PEACE, A. B., 1901, A. M., 1906, (University of Kan-  
sas). Preparator and Demonstrator in the Botanical Labora-  
tory, 1902. (201 S.) 846 Mississippi.
- HANDEL T. MARTIN. Assistant Curator of Paleontology, 1907;  
1899. (Mu.) 745 Arkansas.
- CHARLES D. BUNKER. Assistant Curator of Mammals, Birds and  
Fishes. (Mu.) 1746 New Hampshire..
- FRANCIS XAVIER WILLIAMS, A. B., 1908, (Leland Stanford). As-  
sistant Curator in Entomology, 1910.  
(Mu. 3d Floor.) 1333 Kentucky.
- RAY DUNCAN LINDSEY, A. B., 1909, A. M., 1910, (University of  
Kansas). Assistant Instructor in Zoölogy, 1909.  
(206 S.) 107 Geneva.
- JOSEPH WILSON MURRAY. Assistant Instructor in Journalism,  
1909. (F.) 1341 Ohio.

- EPHRAIM EDGAR LANDRUM. Assistant Instructor in Woodworking, 1909. (Sh.) 931 Maine.
- ARTHUR EARL STEVENSON, PH. C., 1909, (University of Kansas). Assistant in Drug Analysis, 1909. (2 C.) 1300 Connecticut.
- WILBER ABRAM HOBBS, A. B., 1910, (University of Kansas). Assistant Instructor in Chemistry, 1910. (C.) 909 Maine.
- IRVIN WESLEY HUMPHREY, A. B., 1910, (University of Kansas). Assistant Instructor in Chemistry, 1910. (C) 1020 New Hampshire.
- ELLWOOD DEANE ROOD, A. B., 1910, (University of Oklahoma). Assistant in Food Analysis, 1910. (308 C.) 1320 Massachusetts.
- FREDERICK WILLIAM BRUCKMILLER. Assistant in Water Analysis, 1910. (302 C.) 19 W. Adams.
- NOBLE PIERCE SHERWOOD, B. S., 1905, (University of Kansas). Assistant Instructor in Botany and Bacteriology, 1910. (201 S.) 1041 Kentucky.
- WALTER BOHNSTENGEL, B. S., 1910, (University of Kansas). Laboratory Assistant in Mechanical Engineering, 1910. (M. L.) 1111 Kentucky.
- VICTOR LEDNICKY. Laboratory Assistant in Mining Engineering, 1910. (Min.) 1339 Kentucky.
- VEDA WALKER. Assistant Instructor in Expression, 1909. (D.) 703 Indiana.

#### LIBRARIAN AND ASSISTANTS.

- CARRIE M. WATSON, A. B., 1877, (University of Kansas). Librarian, 1887. (L.) 1310 Louisiana.
- EDITH M. CLARKE, A. B., 1895, (University of Kansas). Cataloguer, 1904. (L.) 1210 Ohio.
- CLARA SCIOTO GILLHAM, A. B., 1884, (University of Kansas). Loan Desk Assistant, 1904. (L.) 1345 Tennessee.
- MARY MAUD SMELSER. Accession Assistant, 1904. (L.) 1147 Ohio.
- MARY AGNES COLLINS, A. B., 1904, (University of Kansas). Reference Assistant, 1907. (L.) 120 W. Lee.
- SUSIE SHAFFER, A. B., 1910, (University of Kansas). Reference Assistant, 1910. (L.) 1120 Tennessee.



NELLIE BURNHAM, A. B., 1910, (University of Kansas). Reference Assistant, 1910. (L.) 1508 New Hampshire.

AMORETTE WEAVER, A. B., 1909, (University of Kansas). School of Law Assistant, 1910. 737 Indiana.

DORA RENN BRYANT, (University of Kansas). School of Engineering Assistant, 1911. (E.) 1310 Louisiana.

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### BUSINESS AND EXECUTIVE OFFICERS.

EDWARD E. BROWN. Secretary and Purchasing Agent, 1907; 1894. (105, 109 F.) University Heights.

GEORGE O. FOSTER, A. B., 1901, (University of Kansas). Registrar of the University, 1899; 1891. (109, 111 F.) 937 Missouri.

EBEN F. CROCKER. Superintendent of Buildings and Grounds, 1902. (201 Repair Shop.) University Heights.

EARL B. CRONMEYER. Accountant, 1906. (109 F.) 833 Missouri.

MINNIE STELLA MOODIE. Secretary to the Chancellor, 1902. (103 F.) Station "A," Lawrence.

ELEANOR MAUDE KIBBEY, A. B., 1895, (William Woods College). Assistant Registrar, Clinical Department, School of Medicine, 1905. Rosedale, Kan.



**PART II.**  
**The University.**

(29)





# THE UNIVERSITY.

## ORGANIZATION.

The work of the University is comprehended in the schools and departments mentioned below. Everything pertaining to the University organization is under the control of the Board of Regents. Each school and department is also under the control of the Chancellor and a separate Faculty of Instruction.

## DEPARTMENTS OF INSTRUCTION.

- I.—The Graduate School.
  - II.—The College of Liberal Arts and Sciences.
  - III.—The School of Engineering.
    - 1. The Civil Engineering Course.
    - 2. The Electrical Engineering Course.
    - 3. The Mechanical Engineering Course.
    - 4. The Mining Engineering Course.
    - 5. The Chemical Engineering Course.
    - 6. The Municipal and Sanitary Engineering Course.
  - IV.—The School of Fine Arts.
    - 1. The Course in Piano Playing.
    - 2. The Course in Organ Playing.
    - 3. The Course in Violin Playing.
    - 4. The Course in Violoncello Playing.
    - 5. The Course in Voice Culture.
    - 6. The Course in Drawing and Painting.
    - 7. The Course in Expression.
  - V.—The School of Law.
  - VI.—The School of Pharmacy.
    - 1. The Short Course in Pharmacy.
    - 2. The Three-year Course in Pharmacy.
    - 3. The Collegiate Course in Pharmacy.
  - VII.—The School of Medicine.
  - VIII.—The Summer Session.
  - IX.—The School of Education.
  - X.—The University Extension Division.
- Institutions Connected with the University and under its Control.*
- XI.—The Library.
  - XII.—The Gymnasium.
  - XIII.—The Museums.
  - XIV.—The University Geological Survey.
  - XV.—The Engineering Experiment Station.
  - XVI.—The Visitation of Schools.

**THE GRADUATE SCHOOL.** In the College of Liberal Arts and Sciences, the School of Engineering and the School of Education, there are advanced courses leading to the degrees of master of arts and master of science, doctor of philosophy, and the higher engineering degrees. These courses have been organized into a Graduate School, open to graduates of this and, under certain conditions, other universities and colleges.

**THE COLLEGE OF LIBERAL ARTS AND SCIENCES.** The College of Liberal Arts and Sciences offers instruction in literature, science and the arts, leading to the degree of bachelor of arts. It is the central department of the University and the foundation upon which all the rest are built. In it are included many of the courses offered in the other departments of the University, and there is no distinct separation of faculties, nearly all being included in the Faculty of the College of Liberal Arts and Sciences. The courses of study are mainly elective and presume four years of residence work.

**THE SCHOOL OF ENGINEERING** offers courses in civil, electrical, mechanical, mining, chemical and municipal and sanitary engineering, leading to the degree of bachelor of science, requiring four years of residence work.

**THE SCHOOL OF LAW** offers three years of legal instruction, leading to the degree of bachelor of laws.

**THE SCHOOL OF FINE ARTS** offers courses in piano, organ, violin and violoncello playing, voice culture, drawing and painting, and vocal expression.

**THE SCHOOL OF PHARMACY** offers two, three and four years of work in pharmaceutical study.

**THE SCHOOL OF MEDICINE** offers a complete four-year medical course. The work of the first two years is done in the laboratories at the University; that of the second two years, in the clinical laboratories at Rosedale.

**THE SUMMER SESSION** (six weeks, or nine weeks, as the student elects) is intended to meet the wants of teachers and others who wish to pursue collegiate study but are unable to attend the regular sessions of the University. Collegiate credit is allowed for certain courses offered.

**THE SCHOOL OF EDUCATION** has been developed out of the former department of education, and now embraces in organic form the numerous university forces which contribute to the direct preparation of those who elect teaching as a profession.

**THE UNIVERSITY EXTENSION DIVISION** opens various lines of activity to students who are not able to pursue courses in residence at the University. It includes lectures, correspondence courses, and the furnishing of general information.

**THE LIBRARY.** The library of the University is regarded as the center of the instructional life of the University. It is used to supplement the instruction in all departments, and also for wide reading for purposes of general information by students of the University.

**THE GYMNASIUM.** The gymnasium is the center of the physical education of the students in general, and also of the athletics of the University.

**THE MUSEUMS.** The museums are used for the storing of collections valuable from a scientific point of view, and also for the purpose of supplementing the scientific instruction of the University.

**THE GEOLOGICAL SURVEY.** The University is authorized by law to carry on the State Geological Survey of Kansas, giving special attention to natural products of economic importance. The Chancellor of the University is *ex officio* director of the survey, and the work is carried on under the immediate direction of the State Geologist who is Professor of Geology in the University, assisted by other University officers. As the survey progresses reports are published from time to time bearing on scientific conditions and economic resources.

**THE ENGINEERING EXPERIMENT STATION.** This department of university activity has been organized for the purpose of effectively using the well-equipped laboratories of the University for the investigation of technical problems of importance in the industrial development of the state. A number of lines of investigation, leading to the better development and utilization of the resources of the state, have already been pursued to a successful outcome, and others are now being carried on. It is the purpose of the Experiment Station to encourage research with this object in view, and to publish the results of such investigations when completed.

**THE VISITATION OF SCHOOLS.** The purpose of school visitation is the maintenance of close and helpful relations to the state public-school system, of which the University is the head. The work includes the visiting of high schools, lectures and addresses for normal institutes, teachers' associations, and other educational meetings.

## GOVERNMENT.

The legislature of 1889 passed an act providing for the government of the University and repealing all former legislation bearing upon the same subject. This act declares that the government of the University shall be vested in a board of seven Regents, six of whom shall be appointed by the governor and con-

firmed by the senate, and whose term of office shall be four years; that the Board of Regents shall be a body corporate, under the name of "The Regents of the University of Kansas," and as such may sue and be sued, make contracts, and hold and transfer property, both real and personal, for the University.

The Board of Regents is also invested with the power to elect a Chancellor, who shall be the chief officer of the University, and president of the Board of Regents, with the full power of a regent; to appoint professors, assistants, tutors; to increase and diminish their number as the interests of the University may require; to employ officers and employees, as in their judgment the needs of the University require.

The Board is also empowered to confer such degrees and grant such diplomas as are usually conferred and granted by institutions of learning.

### DISCIPLINE.

That the generosity of the state may not be abused, and that perfect justice may be done all who are earnestly striving to make the best possible use of the opportunities offered, there is but a single requirement, *unquestionable deportment and strict attention to university duties.*

### THE UNIVERSITY AND THE STATE.

The University of Kansas is an integral part of the free public-school system of the state. It was established by an act of the legislature of 1864, and its object, as defined by that act, is to "provide the inhabitants of the state with the means of acquiring a thorough knowledge of the various branches of literature, science, and the arts." In realizing the object thus set for it, the University stands in direct connection with the high schools of the state. It begins where the high school ends, and thus completes, for so many as avail themselves of the advantages, the thorough education which the state endeavors to provide. Persons who have completed, in any accredited high school or other institution of learning having educational standing, the work required in preparation for the University, are admitted to its privileges without examination. For this reason the high schools and academies of the state have in general arranged their courses of study in accordance with the University requirements. Though the University was established and is maintained, primarily, for the young men and women of Kansas, it also opens its doors, at very moderate tuition, to the young men and women of other states.

As the head of the public educational system of Kansas, the University endeavors to encourage whatever may contribute to



the higher intellectual and moral interests of the state. Believing that the strength and value of the University are measured by its service to the state at large, and wishing to reach as many of the citizens as possible in a helpful and stimulating way, the authorities cordially invite all who desire to pursue courses of study or investigation to connect themselves with the University. All who are seeking special information or self-culture and the highest type of civic life and influence should feel that, by the generosity of the state, advice and information are freely placed at their command.

## HISTORY AND LOCATION.

The idea of a State University in Kansas dates from the early days of Kansas territorial government. Each of the constitutions adopted for the territory of Kansas during the period of its memorable struggles provided for the establishment of an institution of higher learning, to be supported by public funds. The last of these, which became, on the admission of Kansas to the Union, the constitution of the state, declares that "provision shall be made by law for the establishment, at some eligible and central point, of a State University, for the promotion of literature and the arts and sciences."

By an act of Congress, approved January 29, 1861, the day on which Kansas was admitted to statehood, seventy-two sections of land were set apart and reserved for the use and support of a State University. The state accepted the trust, and in 1863 the legislature selected the city of Lawrence as the location for the institution. One year later the legislature passed an act organizing the University and giving to it the name of "The University of Kansas." A charter was immediately drawn up, and the government of the institution was vested in a Board of Regents, appointed by the governor.

The Board thus appointed held its first meeting on March 21, 1865, and decided to open a preparatory department as soon as the citizens of Lawrence should provide rooms for that purpose. This the citizens undertook to do, and by the middle of September, 1866, they were enabled, by the aid of gifts from various individuals and organizations, to erect the building now known as North College. The first Faculty of the University had been elected by the Board of Regents in July of the same year, and on the 12th of September the University was opened to the young men and women of the state.

In 1876 the legislature of the state established a normal department, which, though successful, was discontinued in 1885. The Law School was opened in October, 1878, and the School of Pharmacy was established in 1885. A course in engineering was

arranged as early as 1873, but remained a part of the collegiate department until 1891, when the School of Engineering was organized and the collegiate department became known as the School of Arts. During the same year the preparatory department was discontinued, and the department of music and art were combined to form the School of Fine Arts. The Graduate School was organized in 1896; and in 1899 the preparatory medical course, which had been offered in the collegiate department since 1880, was extended into a regular medical course, constituting the work of the School of Medicine. In 1904 the Board of Regents changed the name of the School of Arts to the College of Liberal Arts and Sciences. The School of Education and the Division of University Extension were established in 1909.

The Rev. R. W. Oliver, the first Chancellor of the University, resigned his position after one year of service, and was succeeded by Gen. John Fraser. In 1874 Dr. James Marvin was made Chancellor. His resignation, in 1883, was followed by the election of Dr. Joshua A. Lippincott. Prof. Francis H. Snow, who had been a member of the Faculty from the beginning, was elected Chancellor in 1890. In 1901, on account of failing health, Chancellor Snow resigned. Mr. W. C. Spangler, a graduate of the University and a member of the Board of Regents, was appointed to act as Chancellor until the election of a regular incumbent. Frank Strong, Ph. D., was elected in April, 1902, and assumed the office August 1 of that year.

The University is situated on a projection of the bluffs bordering the Kansas river valley, known as Mount Oread. There is in America no more beautiful location for a seat of learning, and no more inspiring outlook than is commanded by the campus and buildings of the University.

Lawrence is a city of about 15,000 inhabitants, and is forty miles west of Kansas City. It is a healthful city, and offers many advantages as a place of residence for those desiring the benefits afforded by the University.

## BUILDINGS AND GROUNDS.

The University campus comprises 163.5 acres at Lawrence, and 7.5 acres in the campus of the Medical School at Rosedale. There are twenty University buildings, fifteen of which were erected by the state and five by private gifts. Seventeen of these buildings are used for purposes of instruction, the remaining three being the service building, heating plant and the Chancellor's residence.

## NORTH COLLEGE.

This structure was the first building to be erected. The funds for its erection, \$20,000, were secured through gifts of citizens. It is fifty feet square, three stories high, and contains eighteen rooms. It was completed in 1866, from which time until 1872 the entire work of the University was carried on within its walls. In 1872 Fraser Hall was completed, and North College was for a time closed. In 1890 it was again opened, and, until the end of the school year 1893-'94, was used by the School of Law. It is at present used by the School of Fine Arts.

## FRASER HALL.

This building was erected in 1872. The original cost of the building was \$140,500. Of this sum \$90,500 was secured from the sale of bonds issued by the city of Lawrence and \$50,000 appropriated by the state legislature. The legislature has appropriated \$42,975 for improvements and repairs on it. The building is 246 feet in extreme length, 98 feet wide in the center, wings 62 feet each. There are about sixty rooms in Fraser Hall, of which one, the main audience room, containing an electric pipe organ, is 94 feet long and 56 feet wide. This room has a seating capacity of 1200. In this building are located the executive offices of the University, including the Chancellor's office, the office of the Secretary, and the office of the Registrar. The building is named in honor of Gen. John Fraser, the first active Chancellor of the University.

## MEDICAL HALL.

This building was erected in 1884, at a cost of \$12,000—\$8000 from interest on the permanent endowment fund of the University, and \$4000 appropriated by the legislature. It is in the form of a T, the main part, extending east and west, being 80 by 35 feet; and the L north of this is 40 feet square. The basement is used for work in anatomy. The physiological laboratory is located in a large room on the second floor. The east wing of this floor is occupied as a lecture room, and is capable of seating seventy-five students. Other rooms are used for private laboratories, library, etc.

## SNOW HALL.

This structure was erected in 1886, from a \$50,000 appropriation by the legislature. It is 110 feet in length by 100 feet wide, two stories in height, each 16 feet in the clear, is provided with an attic of 12 feet, and with a basement almost entirely above-ground. The geological department occupies the two southeast rooms of the first floor, and the departments of zoölogy and botany use the large west room of this floor for laboratory pur-



poses. The entire second floor is devoted to laboratories for advanced work in botany and zoölogy. The west room of the third floor is used for geological collections. The south room is the botanical museum. The department of drawing and painting occupies the remainder of the third floor. On the first floor of the east half is a large lecture room which has accommodations for 200 students. The building is named in honor of Professor Francis Huntington Snow.

#### HEATING PLANT.

This building was erected by the state in 1887, at a cost of \$16,000. For many years part of the structure was used by the Engineering School for shop-work purposes. On March 22, 1898, fire almost completely destroyed the building. In the same year it was rebuilt and equipped at a cost of \$30,000 from funds lent by the citizens of Lawrence. This money was returned by the legislature of 1899. An addition was built in 1908, at a cost of \$2500, appropriated by the legislature.

#### SPOONER LIBRARY.

This building was erected in 1894, at a cost of \$75,000, by the generosity of William B. Spooner, of Boston. Its length is 112 feet and its extreme width 50 feet. The building is two stories high, with a basement, the greater part of which is above-ground. On the first or main floor are located the general reading room, a newspaper room, and the Librarian's and Cataloguer's offices. The reading room is admirably arranged and lighted. In the newspaper room are kept the county and city weeklies and dailies published within the state. In addition, dailies published in all the larger cities of the United States are kept on file. The second floor of the building is also devoted to library purposes. In the basement are seminary rooms used for study purposes by the various departments. The building is lighted throughout by electricity.

#### CHANCELLOR'S RESIDENCE.

This building was erected in 1894, at a cost of \$12,000 from the William B. Spooner bequest. By action of the state legislature it was occupied by Dr. Francis H. Snow until his death in 1908. It is now the official residence of the Chancellor of the University.

#### BLAKE HALL.

This building is of Cleveland, Ohio, sandstone, and was erected by the state in 1895 at a cost of \$58,000. The building is approximately 110 feet in length by 70 feet in extreme width, and contains two stories, a high basement and an unfinished third story. It is occupied chiefly by the department of physics and



electrical engineering, and is named for Dr. Lucien Ira Blake, formerly professor of physics and electrical engineering at the University.

#### FOWLER SHOPS.

This building was completed in 1899 at a cost of \$21,000, and is the gift of Mr. George A. Fowler, of Kansas City, Mo., as a memorial of his father. It is devoted primarily to instruction in machine construction methods, containing woodworking and pattern-making room; forge room and metal-working room or machine shop. A foundry has been equipped in a room vacated by the removal of the power plant. The hydraulic and dynamo laboratories of the Engineering School occupy rooms temporarily in this building. The building is of native stone, and is 224 feet long by 50 feet in width, two stories high, with attic and tower, containing about 20,000 square feet of floor space for instructional purposes.

#### THE CHEMISTRY AND PHARMACY BUILDING.

This building was completed in 1900 at a cost of \$70,000, appropriated by the legislature. The material used is native limestone, laid in horizontal courses, with recessed pointing. The building is arranged specifically for laboratory purposes for the departments of chemistry and pharmacy. It is 187 feet long, and its greatest width is 70 feet. The ground plan shows a central portion devoted to offices, private laboratories, supply rooms, balance rooms, and smaller recitation rooms, and two wings. The building is three stories in height, with a basement of the same height as each of the stories above; beneath the basement floor there is an air space of four feet down to the solid rock on which the foundations are laid. The system of heating and ventilation, which has been arranged with special care, includes a fan blower, run by electric power, which forces tempered air over steam coils and thence into the laboratories and lecture rooms. The air thus brought into the rooms is carried out by hoods on the sides of the rooms, which are connected with nine-inch tiles terminating in the chimneys above the roof, each hood being ventilated by an independent flue.

#### THE NATURAL HISTORY MUSEUM BUILDING.

This building, erected by the state in 1902 at a cost of \$75,000, furnishes a safe home for the natural-history collections, estimated to be worth \$300,000. The upper floor is devoted to the collections in entomology and paleontology. The remainder of the building is used for the exhibition of mammals and birds. The offices are occupied by the curator of mammals, birds, and fishes, and the curator of the entomological collections. The workrooms of the taxidermist are in the basement.

## GREEN HALL.

Green Hall, erected by legislative appropriation, at a cost of \$65,000, was occupied by the School of Law in the fall of 1905. It is a two-story structure, with basement, is 120 feet long and 60 feet wide, and is made of gray pressed brick. The second story is practically given over to the law library and reading room, which is approximately 116 feet long by 40 feet wide. This building is named in honor of the Dean of the School of Law, James Woods Green.

## THE ROBINSON AUDITORIUM-GYMNASIUM.

The legislature of 1905 appropriated \$100,000 for a building for a gymnasium and auditorium. This building is 178 feet long by 144 feet wide at the wings, with an average width of 90 feet, and has three stories, including the basement. In the basement are arranged locker rooms, baths, dressing rooms for the athletic teams, and swimming pool. The first story contains a gymnasium for men and another for women, a trophy and reception room, and offices for the directors of the work for men and women, respectively. The second story contains a clear floor space 70 x 127 feet. A running track in the gallery extends entirely around this floor. By removing the apparatus this floor may be transformed into an auditorium which has a seating capacity of 3000 people. Around this auditorium, and opening out from it, are rooms for handball, boxing, wrestling, fencing, a room for special classes, and a Faculty room. The arrangement and equipment of this building are modern in every particular. The building is named in honor of Charles Robinson, first governor of Kansas, and his wife, Mrs. Sara T. D. Robinson.

## THE ELEANOR TAYLOR BELL MEMORIAL HOSPITAL

Is the collective term applied to the group of buildings now being erected on the property given to the University by Dr. Simeon B. Bell, of Rosedale, and named in memory of his wife. The medical pavilion is completed and cost \$29,500. This consists of a two-story brick building, containing beds for thirty-four patients, and a hydrotherapeutic and massage department. There are twelve private rooms and two wards. The building has a large convalescents' room, and roomy porches looking out over the Turkey Creek valley and toward Kansas City, Kan. The situation is elevated and pleasant, an ideal home for the sick. A \$50,000 addition to this building is in course of erection.

## THE CLINICAL LABORATORY.

This forms an intrinsic part of the Eleanor Taylor Bell Memorial Hospital, and is a brick building 50 x 100 feet, of three stories, erected at a cost of \$40,000. It has concrete floors and

a general fireproof construction. The teaching laboratory is a room 100 x 30 feet. From this open four small workrooms for instructors. There are three lecture rooms, a library, offices for the Dean and Superintendent, and also a morgue and an animal room. This building crowns the hill, and will eventually be surrounded by five or six hospital pavilions, similar to the medical pavilion already built.

### THE SERVICE BUILDING.

This building, erected in 1908, contains the office of the superintendent of buildings and grounds, a pipe shop, a carpenter shop, a paint shop, rooms for storage of supplies, and also houses the University fire-fighting apparatus.

### MARVIN HALL.

This building has been erected at a cost of about \$90,000, appropriated by the legislature of 1907, and contains equipment for the general work of the School of Engineering. It is a four-story structure, the three upper floors being devoted to classrooms, drafting rooms, offices, a school library, instrument rooms, blue-printing rooms, etc., and the basement principally to laboratories. It is 187 feet on the front by 64 feet in depth, with a wing at the east end 56 feet wide extending 29 feet to the rear. The heating, ventilating and lighting systems are complete and modern in every respect. This building is named in honor of F. O. Marvin, Dean of the School of Engineering.

### POWER PLANT AND MECHANICAL LABORATORY.

This building was completed in 1909 at a cost of about \$23,000. It is built of native stone, is 100 feet by 94 feet, and in two distinct sections. It will be used for the purposes indicated by the name, and is the beginning of a system of engineering laboratories which are intended to number five when completed. The distinctive feature of the building is the roof, designed to give the maximum of light for interior work, it being of the "saw-tooth" type characteristic of many recent important manufacturing plants and laboratories. In the power-plant section are power-generating machinery for lights and power for the University and the pumps for regular water service and fire protection, valued at \$37,000. The laboratory section contains equipment for instruction in technical engineering work, particularly in power development, valued at \$25,000.

### HAWORTH HALL.

The building for geology and mining was completed in August, 1909. It is a three-story building, approximately 60 feet by 110 feet in size, with an annex for mining and ore-dressing

laboratories, 40 by 80 feet. The first floor of the building provides two offices, one private laboratory for advanced quantitative work, one large general blowpipe laboratory for mineralogy, one classroom, a drafting room, a fireproof vault for preserving drawings, manuscripts, etc., a museum room for storing mining machinery, and other lesser rooms. The annex provides laboratory facilities for various phases of mining and ore dressing, and is equipped with necessary machinery driven by electric motors, and other appliances for illustrating fully modern methods of ore separation. The entire lower story has a cement floor throughout, and the tables in the blowpipe laboratory are made of metal and concrete in order to guard against danger from fire. The second floor contains two large museum rooms for mineralogy, economic and dynamic geology. They are equipped with oak-veneered, plate-glass show cases around the entire walls of the two rooms, which provide nearly 1000 feet of shelving. The remaining floor space will be occupied by additional cases for museum material and work tables for advanced students. Two office rooms also are on this floor. The third floor contains a library room, two lecture rooms, a large laboratory for students in elementary geology, a petrographic laboratory, and a private laboratory for advanced research. The building is lighted throughout by electricity, is heated by steam, and is commodious and useful. This building is named in honor of Erasmus Haworth, professor of geology and state geologist.

#### NEW BUILDINGS.

There is in process of erection the east wing of a Liberal Arts Building which, when completed, will cost \$500,000.



## UNIVERSITY EXERCISES AND ORGANIZATIONS.

## UNIVERSITY ALUMNI ASSOCIATION.

THE ALUMNI ASSOCIATION is composed of all persons holding degrees granted by the University, though active membership is limited to those who pay annual dues. An endowment membership is maintained for those who subscribe to the endowment fund. An associate membership was established in 1909 for such former students of the University, not graduates, as pay the associate membership dues. Such former students may also become associate-endowment members. The control of the affairs of the association is in the hands of a board of ten directors. A general secretary is employed, whose office is at the University, and who has charge of the publications of the association, and keeps, so far as possible, a complete record of facts concerning alumni. He also superintends the printing plant owned by the association, from which is issued the *Graduate Magazine*. This magazine is sent to all active members of the association. The regular meetings of the association occur during commencement week of each year, at which time the annual alumni address is delivered at the University by some one from among the alumni.

### OFFICERS OF THE ALUMNI ASSOCIATION.

Theophilus H. Scheffer, A. B. '95.....*President.*

Gertrude Boughton Blackwelder, A. B. '75, A. M. '90,  
Vice President.

L. N. Flint, '97, Lawrence.....*Secretary-Treasurer  
and Editor of Graduate Magazine.*

DIRECTORS.

DIRECTORS.		<i>Term exp.</i>
J. C. Ruppenthal, '95, <i>Chairman</i> .....		1913
Harlan F. Graham, '86, <i>g</i> '90.....		1911
D. H. Spencer, A. B., '93, Ph. C. '97.....		1911
Anna Drake McClung, <i>fa</i> '96.....		1912
M. A. Barber, '91.....		1912
Caroline B. Spangler, A. B. '83.....		1913
Irving Hill, '96.....		1914
S. C. Emley, '99.....		1914
Olin Templin, '86.....		1915
Clara Morris Perkins, '77.....		1915

## RELIGIOUS.

CHAPEL EXERCISES. Exercises are held in the University chapel every morning from 10 to 10:15. Though attendance is not required of students, all are cordially invited, and the services are made as attractive and profitable as possible. They consist of the doxology, Scripture reading, prayer, a hymn, and occasional addresses by the Chancellor and others. On Friday mornings the chapel exercises are held from 10 to 10:30, at which time addresses are made by speakers from abroad or by members of the Faculty of the University. During the academic year of 1910-'11 to May 15, addresses were delivered by Chancellor Frank Strong; Gen. J. C. Caldwell, Topeka; Prof. F. N. Scott, University of Michigan; Rev. W. A. Powell, Lawrence; Col. T. M. Golden, Kansas City, Mo.; Mr. E. T. Colton, New York City; Dr. W. T. Elmore; Att'y-gen. John Dawson, Topeka; Hon. C. E. Pile, Parsons; Rev. Noble S. Elderkin, Lawrence; Judge C. A. Smart, Ottawa; Mr. Norman Hapgood, New York City; Hon. Joseph G. Waters, Topeka; Judge Winfield Freeman, Kansas City; Prof. Geo. H. Meade, University of Chicago; Hon. E. L. Copeland, Topeka; Prof. Shailer Mathews, University of Chicago; Prof. Thos. A. Clark, University of Illinois; Pres. H. C. Culbertson, Emporia College; Prof. Charles Zueblin, Winchester, Mass.; Hon. Fred M. Harris, Ottawa; Rev. Frank L. Loveland, Topeka.

On Tuesday mornings the chapel address ordinarily is delivered by a member of the University Faculty. The following Faculty members were speakers during the year 1910-'11: C. H. Johnston, J. E. Boodin, M. T. Sudler, W. H. Carruth, G. A. Gesell, P. F. Walker, D. C. Rogers, Edna D. Day, F. W. Blackmar, W. C. Hoad, L. E. Sisson, E. F. Stimpson, E. M. Hopkins, C. L. Becker, F. H. Billings, R. L. Moodie, R. R. Price, Geo. O. Foster, J. Naismith, Geo. C. Shaad, R. A. Schwegler, A. M. Sturtevant, J. W. Young, C. S. Skilton, H. W. Josselyn.

UNIVERSITY VESPER SERVICE. This is held every Sunday afternoon. The service is largely musical, though there is usually also a brief address. The music, aside from the congregational singing, is furnished by the Vesper Chorus, conducted by the professor of voice training. The speakers for the past year have been: Dr. Nathan Haskell Dole, Boston, Mass.; Dr. Henry C. Mabie, Boston, Mass.; Dr. John E. Boodin; Bishop Eugene Russell Hendrix, Kansas City, Mo.; Rev. Noble Strong Elderkin, Lawrence; Rev. Henry Frederick Cope, Chicago, Ill.; Dean Shailer Mathews, Chicago, Ill.

THE UNIVERSITY OF KANSAS INSTITUTE FOR RELIGIOUS EDUCATION. This is held during one week in the spring of each year. In 1911 the institute occurred March 24-April 1. The institute

nas in successive years been in charge of Dr. Frank K. Sanders, now president of Washburn College, Professor Patton, now of McGill University, Dr. Lyman Abbott, editor of the *Outlook*, Prof. Hugh Black, of Union Theological Seminary, Pres. Frank K. Sanders and Dr. Washington Gladden, of Columbus, Ohio, Prof. Shailer Mathews, of the University of Chicago, and Pres. Frank K. Sanders.

**YOUNG MEN'S CHRISTIAN ASSOCIATION.** The Young Men's Christian Association is an organization composed of 400 Christian men of the University.

Religious services are held weekly, at which the average attendance has been 60 men. The Bible-study department is a strong feature of the organization. The association reports an average attendance of 200 men for the past year, in the classes led by the heads of the Bible chairs and the student leaders. The association also has organized mission-study classes, out of which come the men who offer themselves as missionary educators and evangelists. Through the courtesy of the University Bible chair, supported by the Christian church, at 1300 Oread avenue, the association is accommodated in a temporary home. The parlors are open to the men of the University at all times and committee meetings of various student associations are often held there. The association employs H. C. Herman, '09, as general secretary.

Members of the association meet students at the trains and assist them in finding rooms and boarding places. The employment bureau, under direction of the University, renders all assistance possible to students desiring to earn a part of their expenses. There will be sent to any address, on application, a handbook giving valuable information to prospective students. Address all correspondence to H. C. Herman, 1300 Oread avenue.

**YOUNG WOMEN'S CHRISTIAN ASSOCIATION.** The purpose of the Young Women's Christian Association is fivefold: (1) To develop and deepen the spiritual and moral life of the young women of the University, and to bring to them the conception that no part of their life lies outside of their religion; (2) to be the medium between the women students of the University and the churches of Lawrence; (3) to give practical aid to women students whenever they are in need of it; (4) to be one of the agencies to create the best social standards; (5) to train young women to become efficient workers in church and philanthropic organizations.

Religious services are held weekly, on Wednesday afternoons at 4:45, in room 110, Fraser Hall. During the opening week of the fall term members of the association may be found in the association rest room (room 114, Fraser Hall), ready to assist Freshman girls in registering and finding classrooms and rooming and boarding places.

Information concerning boarding and rooming places and employment for girls may be obtained by applying to the general secretary, Miss Nadia Thomas, 1134 Louisiana street, Lawrence, Kan.

**RELATION TO CITY CHURCHES.** The churches of Lawrence unite in extending to the University students a cordial invitation to enter with them into Christian fellowship, and endeavor to make them feel that, irrespective of church membership, they are welcome to all the privileges which the church affords. To this end the various churches hold receptions for the students at the beginning of each year, the pastors preach special sermons to the students from time to time, and the young people's societies arrange for social gatherings to which the students especially are invited. There are also organized, in the principal Sunday schools of the city, special classes for University students, a number of these classes being in charge of University professors.

By these means the students are brought into close contact with the religious life of Lawrence. A religious census of the student body during the past few years shows that an average of eighty-seven per cent of the students are church adherents, fifty-six per cent are church members, and that a large number are actively engaged in the work of the various churches and organizations connected therewith throughout the city.

**THE BIBLE CHAIR.** April 1, 1901, the Woman's Board of Missions of the Christian Church established a chair of biblical instruction at Lawrence for the benefit of University students. A site was purchased on Mount Oread, adjoining the University campus, where, in a building erected for the purpose, the work is carried on.

There is no organic relation between the Bible chair and the University. Its support rests entirely upon private gifts. No fees are charged. The privileges are offered to all students, without regard to their religious affiliations, and the courses are arranged to meet their convenience.

The instruction is nonsectarian. The purpose of the work is to give students a more intimate acquaintance with the Bible, and to render them assistance in their religious life.

The courses include studies in both the Old and New Testaments, and the history of missions, and the great religions of the world. Work in the Hebrew language is offered to such as are interested. Wallace C. Payne, A. B., A. M., (Bethany College), B. D., (Yale University), occupies the chair. Mrs. W. C. Payne is associated with him.

During the ten years now closing about 2000 students have taken advantage of the opportunity thus given to acquaint themselves more fully with the Bible.



Mrs. W. C. Payne will lecture upon "The Women of the Bible," "The History of Missions," "The Lives of Great Missionaries," and "The Parables of Jesus."

In addition to the studies given at the lecture room, 1300 Oread avenue, during the school year 1911-'12, special attention will be given group classes for Bible study in private, fraternity and sorority houses.

The library, with valuable works on Bible study, missions, religion, Christian sociology, the Sunday school, and related subjects, is accessible to all.

Anyone desirous of further information may address Prof. W. C. Payne, Myers Hall, 1300 Oread avenue, Lawrence Kan.

**WESTMINSTER HOUSE.** This institution has been established by the Presbyterians of Kansas to afford the advantages of religious instruction, pastoral care and the atmosphere of a Christian home to their young people attending the University of Kansas. It was opened in 1905, under the charge of Francis Allen Wilber, A. B., A. M., D. D., (Wooster), B. D., (Princeton), as Principal, assisted by Mrs. Wilber and Miss Sage. It has no organic connection with the University.

While denominational in its organization and control, this institution exerts no sectarian influence, but opens its classes and social features to all alike. No fees are charged, and all are welcome.

Courses of study are offered in "Old Testament History," "Hebrew Poetry," "Messianic Prophecy," "The Life of Christ," "The Teachings of Jesus," "Apostolic History and Literature," "History of the English Bible," "Modern Missions, both Home and Foreign, as Related to the World Movements of To-day," and "Civic Problems and their Religious Solution." The following courses will be offered to special classes: "Pedagogy as Applied to Bible Teaching," "The History and Art of Hymnology," and "Beacon Lights of Church History."

The purpose of these courses is to offer to students of the University the advantages of thorough instruction in those branches of study which are distinctive features of the curriculum in denominational colleges.

Last year \$32,000 was subscribed by Kansas Presbyterians, upon the endowment fund, and the new Westminster Hall, the gift of Mr. W. W. Cockins, of Lawrence, was opened and dedicated on October 7, 1910.

All correspondence in regard to courses of study or pastoral matters should be addressed to Rev. Francis A. Wilber, Westminster Hall, 1221 Oread Ave., Lawrence, Kan.

## SOCIAL AND LITERARY.

ASSOCIATION OF THE LADIES OF THE FACULTY. The women connected with the University as instructors and the wives of instructors form an association whose purpose is to promote the moral and social welfare of the young women students, and to further an acquaintance between themselves and these students. To this end, besides holding general receptions and meetings for the discussion of questions of common interest, twice a month, on Fridays, the Ladies of the Faculty give an afternoon tea for the young women of the University. A committee of the association meets the young women at the University during the opening week of the year, and assists them in finding suitable boarding and rooming places. Students are always cordially welcome in the homes of the Faculty.

THE PHI BETA KAPPA SOCIETY. The Kansas Alpha chapter of this society was organized in April, 1890. The object of the society is, primarily, the promotion of scholarship in the University. To this end, a portion of the members of the graduating class of the College, never to exceed one-sixth, who have made high records for scholarship in their University studies, are elected to membership.

GERMAN CLUB. The membership of this club, which meets once a week in the large German recitation room, consists of such students as have made sufficient progress in German to take active part in the programs. The object of the club is to furnish the student special opportunity to familiarize himself with the spoken language, and to promote an interest in all that is German. Musical and literary programs, rendered by the students, alternate with talks or lectures by members of the Faculty or outside speakers, and the meetings are conducted exclusively in German. A special feature in connection with the club is the German play, which is given each year by the students of the department.

THE QUILL CLUB is an organization of students and instructors especially interested in English composition, which meets to hear and discuss original productions presented by members and others. The best of this material is published by the Club.

ENGLISH JOURNAL CLUB. This is composed of the instructors and advanced students in the department of English language and literature. It holds meetings twice a month, at which the members report upon and discuss the leading journals devoted to English scholarship and research.

FRENCH CLUB. The instructors and students in the French department compose the *Cercle Français*, which meets once a

week to present a brief literary program, reviews of articles in the leading French magazines, and reports on French topics. French only is used, as one of the chief objects of the club is to provide better opportunities than can be offered in the classroom for the practice of the spoken language. Another opportunity for such practice is found in the French play, which is given towards the close of the year by the students of the department.

THE GREEK SYMPOSIUM consists of the instructors and students of the Greek department, who meet once a month for the reading of papers and discussion of topics which are either too general or too special for class work. The meetings are held in the evening, at the home of one of the instructors, and the special program is followed by a social hour.

SPANISH CLUB. The Centro Español has been formed on the same general lines as the French club for those students who wish to acquire facility in the use of spoken Spanish. At its weekly meetings, besides programs of a literary character, news of the Spanish-speaking world is reported and discussed. The Spanish play gives further opportunity to acquire readiness in speaking.

### SCIENTIFIC.

THE SIGMA XI SOCIETY. The Iota chapter of this scientific honorary society was established at the University in 1890. The society confers the honor of election to membership upon instructors and students who have shown special aptitude along scientific lines, especially with regard to research work. This chapter holds monthly meetings for the reading and discussion of scientific papers, and is the center about which the scientific interests of the University are gathered.

CHEMICAL CLUB. This is composed of the instructors and advanced students in the department of chemistry and pharmacy. Weekly meetings are held, and the programs include reports on research work by instructors and students, reports on scientific meetings and associations, reviews of new books and important articles in chemical journals, and notices of important inventions and new chemical processes.

CIVIL ENGINEERING SOCIETY. This is maintained by students, under the guidance of the instructors in the department. It holds monthly meetings and is frequently addressed by practicing engineers, besides maintaining a program of papers and discussions.

UNIVERSITY OF KANSAS BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. This is composed of instructors and students who are associate members or student members of the national organization. It holds biweekly meetings, for the dis-



cussion of papers presented before the national meetings of the association, and other papers. Current engineering literature is reviewed, and as often as possible addresses by prominent engineers are secured, with the aim of acquainting the students with current engineering practice and problems. All electrical engineering students are free to attend these meetings.

UNIVERSITY OF KANSAS STUDENT SECTION OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS. This is essentially a student organization, under the supervision of a Faculty member of the national society. Weekly meetings are held for reports on current engineering literature, with occasional addresses by outside engineers. An annual meeting is held in December, usually with several visiting members of the national society giving technical papers.

AFFILIATED STUDENTS' SOCIETY OF THE AMERICAN INSTITUTE OF MINING ENGINEERS. This is a society composed of junior and senior students and faculty members of the department, which enjoys the advantage of association with the Institute. Meetings are held monthly for the discussion of the publications of the Institute and the presentation of papers.

All students in the last three years of the course meet each week in the Mining Journal for the consideration of professional literature and discussion of subjects of interest. Addresses are frequently given by University engineers.

THE PHARMACEUTICAL SOCIETY. This society was organized in December, 1886, by the students and instructors of the department, for the purpose of assisting each other in the study of sciences especially related to the art of pharmacy, in the practical applications of the same, and for friendly intercourse. Meetings are held biweekly during the school year.

### DEBATING AND DRAMATIC.

DEBATING COUNCIL. The council is made up of three members of the Faculty appointed by the University Council, and two representatives chosen from each of the literary societies of the University; and under its supervision are held all preliminary and interstate debates. At present, annual debates are held with the University of Colorado, the University of Oklahoma, and the University of Missouri.

DRAMATIC CLUBS. The students of the University maintain three dramatic clubs for the study and the presentation of modern plays. Membership in these clubs is open to all students and is secured by dramatic trials held at stated intervals.



## MUSICAL.

**ORCHESTRA.** Young men and women of the University form an orchestra each year to furnish music for commencement and special convocations, and to make a study of orchestral masterpieces. The orchestra is under the direction of the Dean of the School of Fine Arts. Semiannual concerts are given.

**MEN'S GLEE CLUB.** The Men's Glee Club is under the direction of the head of the department of voice training of the School of Fine Arts. The general control of the club, as to financial obligations and tours, is in the hands of a committee of the University Council. The annual concert is an important University event. A tour of the state is made during February.

**VESPER CHORUS.** The Vesper Chorus is composed of leading singers of the city and University, and takes part in the weekly vesper services. It is under the direction of the professor of voice training.

**BAND.** The University Band is a permanent organization, fully uniformed, and directed by a professional leader. The band furnishes music at the various athletic contests held at the University and for other student gatherings, and gives several concerts annually.

**THE FESTIVAL CHORUS.** The Festival Chorus is composed of musical people of Lawrence and students of the University. The director is the Dean of the School of Fine Arts. The Festival Chorus undertakes the chorus work for the annual spring music festival at Lawrence.

**OPERA.** An opera is given each year by students of the voice department, accompanied by the University Orchestra. The opera for 1909 was "The Mikado," by Gilbert and Sullivan.

## CONCERTS, ADDRESSES, AND ART EXHIBITIONS.

## CONCERTS AND RECITALS, 1911-'12.

- OCTOBER** ..... Piano recital, by Alfred Calzin.  
                                 Song recital, by Liza Lehmann and quartet.  
                                 Student recital.
- NOVEMBER** ..... Annual fall concert of the University Orchestra.  
                                 Concert, by the music faculty.  
                                 Violoncello recital, by Paolo Gruppe.  
                                 Two student recitals.
- DECEMBER** ..... Song recital, by Lilla Ormond.  
                                 Annual Christmas concert.  
                                 Student recital.

- JANUARY ..... Piano recital, by Agnes Lapham.  
 Song recital, by Elizabeth Wilson.  
 Two piano recitals, by Professors Preyer and Skilton.  
 Two student recitals.
- FEBRUARY ..... Faculty song recital, by Mrs. Lyons.  
 Faculty organ recital, by Professor Skilton.  
 Piano recital, by Harold Henry.  
 Two student recitals.
- MARCH ..... Annual Glee Club concert.  
 Violin recital, by Wally Heymar.  
 Two student recitals.
- APRIL ..... Song recital, by Frederick Martin.  
 Second annual concert of the University Orchestra.  
 Two student recitals.  
 Eighth annual music festival—three concerts, by Anton Kellermann, baritone, Richard Czerwonky, violinist, the Minneapolis Symphony Orchestra, and four soloists.  
 Two student recitals.
- JUNE ..... Graduating recitals.  
 Commencement concert.  
 Commencement organ recital, by Professor Skilton.

Fifteen student recitals are also given by the preparatory department and the department of expression.

#### ADDRESSES.

The following University addresses were delivered at the University during the academic year 1910-'11; all University students were admitted to these addresses without charge:

JUNE 5, 1910. Baccalaureate sermon, William Fraser McDowell, Ph. D., LL. D., bishop of the Methodist Episcopal Church. Subject: "The Interpretation of Life."

JUNE 6, 1910. Sigma Xi address, Samuel Wendell Williston, M. D., Ph. D., University of Chicago. Subject: "Evolution and Human Development."

JUNE 7, 1910. Alumni address, Charles Manford Sharpe, '97. Subject: "The Mutual Responsibilities of Church and School."

JUNE 8, 1910. Commencement address, Josiah Royle, Ph. D., LL. D., professor of history of philosophy in Harvard University. Subject: "Loyalty and Insight."

OCTOBER 19, 20, 1910. Professor A. R. Hohlfeld, University of Wisconsin. Subjects: "The Rhine"; "Richard Wagner as a Dramatic Poet."

OCTOBER 27, 1910. Dr. Winfield S. Hall, Northwestern University Medical School. Subject: "Sex Problems."

NOVEMBER 14, 15, 1910. Professor E. B. Wilson, Columbia University. General subject: "Hereditv."

NOVEMBER 19, 1910. Professor G. B. Frankforter, University of Minnesota. Subject: "Chemical Products from Wood."

DECEMBER 5-11, 1910. Mr. R. A. Daly, St. Paul, Minn. Subject: "How to Find the Law."

DECEMBER 12, 1910. Mr. H. F. Porter, Kansas City, Mo. Subject: "Great Athletes and Games." Illustrated.

FEBRUARY 16, 17, 1911. Professor E. B. Tichener, Cornell University. General subject: "Types of Mind."

MARCH 3, 1911. Professor George H. Meade, University of Chicago. Subject: "Science in Social Practice."

MARCH 24, 1911. Professor Edw. C. Elliott, University of Wisconsin. Subject: "Needed Adjustments in High School Curriculum."

MARCH 24-April 1, 1911. Professor Shailer Mathews, The University of Chicago. Six lectures. General subject: "Social Teachings of Jesus."

MARCH 24-April 1, 1911. President Frank K. Sanders, Washburn College. Six lectures. General subject: "Six Creative Centuries."

APRIL 24-28, 1911. Professor Charles Zueblin, Winchester, Mass. Five lectures. General subject: "The Making of the City."

#### ART EXHIBITIONS.

An annual exhibition of works of art is held at the University, together with a course of lectures upon subjects related to the fine arts. The exhibition was not held in 1910, but will be held in the fall of 1911. At the close of the year there is held an exhibition of work done by pupils of the department of drawing and painting.

#### ATHLETIC.

**ATHLETIC ASSOCIATION.** This association is organized to encourage and promote the physical education and hygienic training of matriculates and graduates of the University of Kansas, and to foster and supervise athletic games, such as baseball, boating, football, tennis, track athletics, basket ball, and similar sports, in connection with the University. Membership in the association is open to all students, graduates, officials, and members of the Faculty.

**THE GOLF CLUB** has its links on the University grounds. It is a self-supporting, independent organization, and membership is open to students of the University.

GENERAL ATHLETICS. The general athletics of the University include football, baseball, basket ball, tennis, and other forms of exercise.

INTERCOLLEGIATE GAMES are played at various times during the year with the teams of neighboring universities.

CONTROL. All forms of exercises, athletics and games are under the control of the director of the gymnasium and his assistants.

THE ATHLETIC BOARD. All intercollegiate athletic contests are under the control of the University Athletic Board, composed of four students elected by the students, four Faculty members elected by the University Council, the Chancellor of the University, the president of the Athletic Association, and the professor of physical education. The last three are *ex officio* members.

RULES. The University Council has adopted rules governing the standing of all those who represent the University in athletic contests. Good scholarship and gentlemanly conduct are required of all such contestants.

#### UNIVERSITY PUBLICATIONS.

THE UNIVERSITY OF KANSAS SCIENCE BULLETIN, formerly the *Kansas University Quarterly*, is maintained by the University as the medium for the publication of the results of original research by members of the University. Papers are published in it only on recommendation of the committee of publication, which committee is composed of five members of the scientific Faculty. Formerly the *Quarterly* was issued at regular intervals, as indicated by the title, but numbers of the present series appear without regard to specific dates. A volume consists of about 400 pages, with the necessary illustrations. The price of subscription is three dollars a volume. Individual numbers vary in price with the cost of publication. The current volume of the present year is volume VI; continuous series, volume XVI. Exchanges with similar publications of other colleges or universities and learned societies are solicited. Communications should be addressed to the University of Kansas Science Bulletin.

UNIVERSITY OF KANSAS STUDIES, HUMANISTIC SERIES, is a new publication, which has been instituted by the Board of Regents for the presentation of the results of research along humanistic lines. The numbers will be issued at irregular intervals, but it is intended to issue three each year. Each number will be a complete monograph, and the price will vary with its size and cost of publication. Arrangements for exchange may be made by addressing the editor.



**THE BULLETIN OF THE ENGINEERING EXPERIMENT STATION.** Reports are issued from time to time as the results of investigations become available for publication. Bulletins are issued in a regular series, numbered consecutively, the first number appearing in the winter of 1909-'10.

**THE UNIVERSITY GEOLOGICAL SURVEY REPORTS** are issued from time to time as material for them is gathered.

**THE UNIVERSITY ENTOMOLOGICAL BULLETINS** are reports issued in regular series from time to time comprising the results of entomological investigation conducted by the University. These deal in part with applied problems of practical value referred to the University by various interests of the state, and in part with fundamental research problems presented by such investigations. These publications will be sent free to any citizen of the state upon application to the Chancellor of the University.

**THE UNIVERSITY NEWS BULLETIN** and the **PRESS BULLETIN** are issued weekly for the purpose of furnishing the newspapers, high-school students and others of the state items of interest regarding University affairs. They will be sent regularly, without charge, to anyone who may express a desire to receive them.

**THE GRADUATE MAGAZINE** is published monthly during the academic year by the Alumni Association of the University. Each volume contains the formal University addresses of the year and articles on subjects related to the University. Departments containing news-matter of interest to alumni and former students are included in each number.

**THE KANSAN** is a newspaper published three times a week by the Kansas University Publishing Association, an organization of students of the University.

**THE JAYHAWKER** is the annual published each year by the Senior classes of the schools of the University.

**THE KANSAS LAWYER** is published monthly by the students of the School of Law, and is devoted to the interests of that school and the Kansas bar.

### UNIVERSITY PRIZES.

**THE WILLIAM J. BRYAN PRIZE FUND.** Hon. William J. Bryan, of Lincoln, Neb., in 1898 presented the University \$250, to be used as follows: The sum is to be invested, and the yearly interest on the same is to be given that student presenting the best thesis on some one principle of our government. The details of the contest are entrusted to the Faculty of the University.

## CONCERTS OFFERED TO KANSAS COMMUNITIES.

The School of Fine Arts is prepared to furnish soloists to take part in concerts, music festivals, or public celebrations, or to give entire recital programs by members of the music and dramatic Faculty and the University musical organizations. The following artists may be secured: Dean Charles S. Skilton, organ and lecture recitals; Prof. Carl A. Preyer, piano; Prof. C. Edward Hubach, tenor; Mrs. Blanche Lyons, soprano; Prof. Wort S. Morse, violin; Miss Gertrude Mossler, dramatic reader; also the University Orchestra of twenty-five pieces, and University Glee Club. Address the Dean of the School of Fine Arts.

## RECOMMENDATION OF TEACHERS.

The University endeavors to assist those of its graduates who desire to teach in securing positions, and at the same time to be of service to high schools, academies and colleges which may be in need of competent instructors. To this end a committee of the Faculty preserves a complete list and record of graduates who are engaged in teaching or have fitted themselves especially for such work. The University authorities are thus prepared at any time to recommend persons who are well qualified for any position as teacher. In so doing, great care is exercised, the special qualifications of various teachers for the particular position in hand being in every case fully considered.

## UNIVERSITY PHYSICIAN.

A University physician has been appointed to look after sick students away from home; to consult with students in all matters relating to health, and to prevent, when possible, trivial ailments from becoming serious; to provide necessary medical services gratuitously to students of the University; and to work with the University health committee in seeking out and eliminating special sources of infection, and in preventing the spread of infectious and contagious diseases among the students of the University. Dr. H. L. Chambers, of the School of Medicine, has been appointed by the Board of Regents University physician.

## HOSPITAL ASSOCIATION.

This is an association for the purpose of providing proper care for students who are ill in Lawrence, and also for the purpose of isolating and preventing the spread of contagious diseases. It has secured the services of a physician and nurses, so that this can be done effectively. It practically guarantees free treatment and hospital accommodations to every member, and the membership fee of three dollars is a sort of health insurance. All students are urged to join this association at the time of registration.

SPECIAL ACTIVITIES UNDER COMMISSION FROM  
THE STATE.

## ANALYSIS OF FOOD AND DRUGS.

The legislature in 1905 passed a bill making it the duty of the chemistry department of the University and the State Agricultural College, under the direction of the State Board of Health, to make analyses of samples of foods and beverages collected by any county or city board of health of the state of Kansas, and to make reports upon the same.

In conformity with this law, for the last four years the chemistry department of the University examined a large number of food products, and the reports of these analyses have been published in the monthly *Bulletin* of the Board of Health. The Kansas food and drugs act of February 14, 1907, requires analyses of drugs to be made by the pharmacy department at the University of Kansas, and of food products to be made by the chemistry departments at the University and the Agricultural College. A special laboratory has been fitted up for the analysis of drugs and another for the analysis of foods. These laboratories are completely furnished with the necessary materials, and a sufficient number of assistants is employed to carry on the work expeditiously.

## WATER SURVEY.

During the session of the legislature held in 1907 a bill was passed providing for a survey of the waters of Kansas, to be carried on under the joint auspices of the State Board of Health and the United States Geological Survey. This work contemplated the complete determination of the mineral matter in all the large streams of the state and a study of the industrial waste and the sewage in the streams. The first part of this work is completed and the results will soon be published by the department at Washington.

## SANITARY CONTROL OF WATER SUPPLIES AND SEWERAGE SYSTEMS.

The legislatures of 1907 and 1909 passed laws giving to the State Board of Health a large degree of control over all public water supplies and sewerage systems of the state, and charging this board with the preservation of the purity of the waters of the state, for the protection of the public health. The University is extensively coöperating with the State Board of Health in carrying these laws into effect. The secretary of the board and two members of the Faculty of the School of Engineering constitute the department of water and sewage of the board, which has this work directly in charge, while all the chemical and bacteriological analyses and tests necessary in the prosecution of the work are made at the University laboratories.

## ENTOMOLOGICAL COMMISSION.

In 1907 the legislature created the State Entomological Commission. The field work of this commission is conducted by the departments of entomology at the University and the Agricultural College. The University has performed the work of inspecting nurseries and issuing certificates to them since the beginning of such requirements, in 1896. It has also conducted investigations in the interests of agriculture and horticulture. Under this commission the department of entomology at the University publishes from time to time the results of its work.

## BACTERIOLOGICAL EXAMINATION OF WATER.

In connection with the United States Government Hydrographical Survey, the department of bacteriology has undertaken a series of tests of water from wells and various other sources. The aim of the work is largely the determination of the extent and source of water pollution through sewage and surface drainage.

## SPECIAL LECTURER ON TUBERCULOSIS FOR THE STATE BOARD OF HEALTH.

At the request of Dr. S. J. Crumbine, secretary of the State Board of Health, Dr. S. C. Emley was relieved from most of his regular work at the University by the Board of Regents and given a leave of absence for two years in order that the University might coöperate with the State Board of Health in undertaking this very important and practical work for the state.

## FISH AND GAME WARDENSHIP.

It having developed on the death of the former fish and game warden that no appropriation had been made to carry on this important work, the Board of Regents offered to the governor of the state the services of Prof. L. L. Dyche until the legislature could take such action in the premises as might seem wise. This work is so important that Professor Dyche has been relieved from so much of his regular duties at the University as may be necessary to put the work of the fish and game wardenship upon a scientific and economic basis, the University believing that in such action it is doing a work of economic value to Kansas.

## CERAMICS.

In developing the natural resources of the state, few fields are richer for investigation than its clays. The University has entered upon this work. Coöperating with the Geological Survey, the department of mining engineering will analyze and test all native clays. The department of fine arts will make use of those found suitable for the production of artistic ware. The depart-



ment is equipped with kilns, throw wheels and all appliances necessary to carry on the work. A thorough course in design is given to those taking the artistic treatment of clays.

### EXPENSES OF STUDENTS.

### FEEs.

By legislative enactment students are required to pay fees as scheduled below. In all cases the matriculation fee is paid but once—at the time the student first registers in the College or in any school of the University. The incidental fee is payable in full each year at registration, but students in the schools of Law, Pharmacy, and Medicine are permitted to pay one-half of the incidental fee at the beginning of each term.

*College of Liberal Arts and Sciences.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

*School of Engineering.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

*School of Law.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation.....	5 00

*School of Pharmacy.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation.....	5 00

Students taking the regular four-year course in pharmacy are registered during the first two years in both the School of Pharmacy and the College of Liberal Arts and Sciences, and may pay the College incidental fee during these two years so long as their work is confined to courses offered in the College.

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation.....	5 00

Since September, 1909, two years of approved College work are required for admission to the School of Medicine. During the first year of the regular four-year course in medicine students are registered in both the School of Medicine and the College of Liberal Arts and Sciences, and may pay the College incidental fee for the first year so long as their work is confined to courses offered in the College.

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Diploma fee, at graduation.....	5 00

*Graduate School.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, for each degree.....	5 00

Incidental fee, for residents of the state.....	\$10 00
for nonresidents .....	15 00

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Laboratory fee, per course.....	5 00
Incidental fee, for residents of the state:	
College and Engineering.....	10 00
Pharmacy .....	25 00
for nonresidents of the state:	
College and Engineering.....	20 00
Pharmacy .....	35 00

## LABORATORY AND SHOP FEES.

Students are required to pay the actual cost of material of all kinds used in laboratories and shops. All the laboratories and shops of the University, and their equipment of desks, tables, balances, microscopes, instruments, models and other apparatus, engines, machinery and power for their operation are at the disposal of students, under the direction of their instructors. These desks, tables and benches will be further provided with individual sets of tools, working apparatus and equipment. At the end of the course, or earlier, at the discretion of the instructor, all the individual equipment in good order must be returned. Such as may have been lost, damaged, broken or destroyed by the student must be paid for by him at that time.

Materials and apparatus of every kind consumed, wasted, lost or broken in the manifold experiments and practice work in laboratories and shops must be paid by the student.

In some departments a definite fee to cover cost of materials in a given course is fixed prior to the opening of each term. Such fees are payable at the Secretary's office at the time of enrollment and before beginning work in such course. Students who for any reason are obliged to drop work in any laboratory course before completion may receive a rebate of such portion of the fee as shall be determined by the head of the department concerned to be due them.

Other departments maintain storerooms, from which the student secures, at cost, material and apparatus as needed, giving coupons in payment. These coupons are sold at the Secretary's office in books of one, two and five dollars, and are accepted in all laboratories and shops maintaining such storerooms. Any coupons unused are redeemed in cash at the Secretary's office when the student has completed the course and checked in his individual equipment. Coupons issued during any school year, however, will not be good beyond the close of that school year.

## OTHER EXPENSES.

Information concerning the location of rooming and boarding places may be had at the office of the Registrar.

The average price of board, rooms, light and fuel may be placed at from \$4 to \$5 a week. Some persons who furnish plain rooms and good, plain food receive students at \$3.50 and \$4 a week. Day board in private families and at city restaurants may be obtained for \$3 to \$4 a week. Day board in clubs varies from \$3 to \$4 a week. Furnished rooms, usually occupied by two students, range from \$4 to \$15 a month. Unfurnished rooms rent for \$1.50 to \$3 a month. Students who can supply their own furniture and buy and prepare provisions for the table themselves can lessen expenses materially.

The following table shows the estimated expenses of a student of the College for a year, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the student:

	Low.	Average.
Board .....	\$120 00	\$160 00
Room .....	20 00	40 00
Books and stationery.....	8 00	15 00
Laundry .....	8 00	20 00
Matriculation and other fees....	15 00	15 00
Incidentals .....	15 00	50 00
Totals .....	\$186 00	\$300 00

The estimated expenses for students in the Medical, Law and Pharmacy schools of the University will vary from the table because of the higher incidental fee.

#### APPROVED ROOMING PLACES.

By order of the Board of Regents of the University, the Registrar keeps lists of approved rooming places, made up of houses receiving men only or women only. *These lists, together with regulations governing rooming places, may be had from the Registrar, on application, and are called to the careful attention of parents and students.* Young women at time of matriculation may receive help in selecting rooms by applying to the committee on rooming places for women.

#### SELF-HELP.

Many students find work in private families, in offices, and in various occupations, by means of which they defray a portion of their expenses. Some students have earned their entire expenses while in attendance, and have made good records at the same time; other students have done so much work that they have not been able to keep up their studies, and have thus missed the one thing for which they came. If it is possible for the student to have a part of his expenses paid, he should not attempt to earn his way entirely by his own exertions. The University cannot guarantee work to any student, but will lend every possible assistance in finding employment; and to this end it maintains an employment bureau, where the names of those seeking work and of those desiring workers are recorded. Students desiring places where they may help themselves are advised to apply to the Registrar of the University, to the secretary of the Employment Bureau, or to the University Y. M. C. A. or Y. W. C. A.



**PART III.**  
**Departments of Instruction.**

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# I. *The Graduate School.*

The legislative Faculty of the Graduate School consists of professors and associate professors of the departments in which graduate courses are offered. The Faculty of instruction includes, in addition to these, assistant professors who are conducting graduate courses.

## FACULTY.

FRANK STRONG, Ph. D., President.

WILLIAM HERBERT CARRUTH, Ph. D., Vice President, and Professor of Germanic Languages and Literatures.

FRANK WILSON BLACKMAR, Ph. D., Dean, and Professor of Sociology and Economics.

EPHRAIM MILLER, Ph. D., Emeritus Professor of Mathematics and Astronomy.

JAMES WOODS GREEN, A. M., Professor of Law.

FRANK OLIN MARVIN, A. M., Professor of Engineering.

EDGAR HENRY SUMMERFIELD BAILEY, Ph. D., Professor of Chemistry and Metallurgy.

ALEXANDER MARTIN WILCOX, Ph. D., Professor of Greek Language and Literature.

LUCIUS ELMER SAYRE, Ph. M., Professor of Pharmacy.

LEWIS LINDSAY DYCHE,\* M. S., Professor of Zoölogy.

CHARLES GRAHAM DUNLAP, Litt. D., Professor of English Literature.

OLIN TEMPLIN, A. M., Professor of Philosophy.

EDWIN MORTIMER HOPKINS, Ph. D., Professor of Rhetoric and English Language.

FRANK HEYWOOD HODDER, Ph. M., Professor of American History and Political Science.

ERASMUS HAWORTH, Ph. D., Professor of Geology and Mineralogy.

ARTHUR TAPPAN WALKER, Ph. D., Professor of Latin Language and Literature.

WILLIAM CHASE STEVENS, M. S., Professor of Botany.

ARVIN SOLOMON OLIN, A. M., Professor of Education.

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\* Absent on leave.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

WILLIAM LIVESEY BURDICK, Ph. D., Professor of Law.

JOHN ELOF BOODIN, Ph. D., Professor of Philosophy.

IDA HENRIETTA HYDE, Ph. D., Professor of Physiology.

WILLIAM HAMILTON JOHNSON, A. M., Professor of Education.

GEORGE HOWARD HOXIE,<sup>a</sup> M. D., Professor of Internal Medicine.

JAMES NAISMITH, M. D., Professor of Physical Education.

MARSHALL ALBERT BARBER, A. M., Professor of Bacteriology and Pathology.

SAMUEL JOHN HUNTER, A. M., Professor of Entomology.

WILLIAM EDWARD HIGGINS, B. S., LL. B., Professor of Law.

CLARENCE ERWIN MCCLUNG, Ph. D., Professor of Zoölogy.

PERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.

MERVIN TUBMAN SUDLER, Ph. D., M. D., Professor of Surgery.

ROBERT KENNEDY DUNCAN, A. B., Director of Industrial Research.

CARL LOTUS BECKER, Ph. D., Professor of European History.

L. D. HAVENHILL, B. S., Professor of Pharmacy.

FREDERICK EDWARD KESTER, Ph. D., Professor of Physics.

GEORGE CARL SHAAD, M. S., Professor of Electrical Engineering.

CHARLES HUGHES JOHNSTON, Ph. D., Professor of Education.

JOHN WESLEY YOUNG, Ph. D., Professor of Mathematics.

RICHARD REES PRICE, A. M., Director of University Extension.

MILES WILSON STERLING, A. M., Associate Professor of Greek.

RAPHAEL DORMAN O'LEARY,\* A. B., Associate Professor of Rhetoric.

HANNAH OLIVER, A. M., Associate Professor of Latin.

ELMER FRANKLIN ENGEL,\* A. M., Associate Professor of German.

SAMUEL CHARLES EMLEY,\* M. D., Associate Professor of Pathology.

SELDEN LINCOLN WHITCOMB, A. M., Associate Professor of English Literature.

HAMILTON PERKINS CADY, Ph. D., Associate Professor of Chemistry.

MARTIN EVERETT RICE, M. S., Associate Professor of Physics and Electrical Engineering.

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<sup>a</sup> Resigned.

\* Absent on leave, 1910-'11.



RALPH WALDO CONE,<sup>a</sup> A. M., Associate Professor of Sociology and Economics.

WILLIAM CHRISTIAN HOAD, B. S., Associate Professor of Civil Engineering.

JOHN NICHOLAS VAN DER VRIES, Ph. D., Associate Professor of Mathematics.

HERBERT ALLAN RICE, C. E., Associate Professor of Civil Engineering.

B. J. DALTON, B. C. E., Associate Professor of Civil Engineering.

CLINTON MASON YOUNG, E. M., Associate Professor of Mining Engineering.

RAYMOND ALFRED SCHWEGLER, A. M., Associate Professor of Education.

FREDERICK HORATIO BILLINGS, Ph. D., Associate Professor of Botany and Bacteriology.

DAVID LESLIE PATTERSON, B. S., Associate Professor of European History.

HENRY WILBUR HUMBLE, A. M., Associate Professor of Law.

LOUIS EUGENE SISSON, A. M., Associate Professor of Rhetoric.

CLARENCE ADDISON DYKSTRA, A. B., Associate Professor of History.

ARTHUR E. HERTZLER, Ph. D., Associate Professor of Surgery.

WILLIAM KIRK TRIMBLE, M. D., Associate Professor of Clinical Pathology.

ARTHUR JEROME BOYNTON, A. M., Associate Professor of Economics.

FRANK EGBERT BRYANT,\* Ph. D., Associate Professor of the English Language.

FRANCIS WILLIAM BUSHONG, A. M., Associate Professor of Chemistry.

CHARLES HAMILTON ASHTON, A. M., Associate Professor of Mathematics.

#### ADMINISTRATIVE COMMITTEE.

FRANK W. BLACKMAR, Dean.

FRANK H. HODDER.

CHARLES G. DUNLAP.

F. E. KESTER.

C. E. MCCLUNG.

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<sup>a</sup> Resigned.

\* Died October 20, 1910.

## PURPOSES OF THE SCHOOL.

The Graduate School provides all the instruction in advanced subjects offered in the University. It is under the direction of the Faculty and administrative committee of the Graduate School, the Dean of the Graduate School being chairman of the administrative committee.

It was organized in 1896, mainly out of the College of Liberal Arts and Sciences and the School of Engineering, and most of the work offered by the Graduate School is in connection with the several departments of these schools. Courses are also given in pharmacy, law, medical science and education.

It is the business of the Faculty of the Graduate School to formulate courses in graduate work; to establish and maintain the requirements for all higher degrees offered by this University; to make recommendations for those degrees to the Board of Regents; and to fix such regulations as they may deem expedient for the government of the School.

## REQUIREMENTS FOR ADMISSION.

Admission to the Graduate School ordinarily is granted to graduates of this University holding the bachelor's degree, and to graduates of other colleges and universities of good standing on presentation of proper evidence of scholarship and testimonials of good character.

## REGISTRATION.

Students wishing to register should first apply to the Dean of the Graduate School. When it is ascertained in what department the student desires to do his major work, the Dean will refer him to the head of that department, who will select the courses, after consultation with the student. The student will then submit the courses to the Dean, and if approved, the applicant will be given a card permitting him to register in the office of the Registrar. Work to be counted as graduate work is specified in the catalogue, and must be designated as graduate on the enrollment card filed in the Registrar's office.

## DEGREES GRANTED.

The University offers eight advanced degrees, viz.:

MASTER OF ARTS.

MASTER OF SCIENCE.

DOCTOR OF PHILOSOPHY.

CIVIL ENGINEER.

MECHANICAL ENGINEER.

MINING ENGINEER.

CHEMICAL ENGINEER.

ELECTRICAL ENGINEER.

## THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS AND MASTER OF SCIENCE.

When the candidate for the master's degree has selected the department in which his major work is to be done the head of that department, in consultation with the candidate, approves his work for the master's degree, which may be confined to the department of the major study or may be selected from that and not more than two other departments. The decision of the head of the department is subject to the veto of the Dean of the Graduate School, but appeal may be made from the decision of the Dean to the Graduate Faculty. The head of the major department approves the courses selected for each semester on a card provided for the same, which is kept on file at the Dean's office. If the student subsequently changes his selection of a major department, the graduate work already done cannot be counted toward the master's degree unless approved by the head of the new major department.

The master's degree will be granted only after at least one full year's graduate work. The candidate must have completed with high credit thirty hours of work chosen from the courses open to graduates, published in the catalogue, or approved by the departments concerned and the administrative committee. Courses for which a professional certificate or diploma is given will not be counted toward this degree. Not more than sixteen hours' credit can be given in one term.

Ordinarily each candidate for the master's degree is required to present a thesis to the head of the department in which the chief study has been. The thesis must embody the results of scholarly research on some topic connected with the candidate's major study. The thesis must be completed and given to the head of the department under whose direction it has been done, not later than May 15 preceding the June in which the candidate expects to receive his degree. After examining the thesis, the head of the department shall report its acceptance to the Registrar and deposit the thesis in the office of the Dean of the Graduate School. In special cases, where it seems advisable for the candidate to devote all of his time to regular class work, not involving research, on the recommendation of the head of the department and the consent of the Dean the requirement of a thesis may be waived.

Ordinarily the candidate for the master's degree is expected to spend a minimum of one year in resident graduate work at some university, the latter half of which at least must be done in residence at the University of Kansas. These regulations permit the acceptance of graduate work done in other institutions to the extent of not more than half of the work, but all credits offered are subject to the decision of the administrative committee. In

cases where students have fulfilled the time requirement and have completed all their work within five hours of the amount required they may be permitted to do five hours' work *in absentia* after obtaining the consent of the Dean and the head of the department in which the work is to be done. The term *in absentia* applies to work not done in colleges and universities. (See exception to the residence rule in regard to Summer Session and Extension.)

### SUMMER SESSION AND EXTENSION WORK.

With the consent of the department concerned, a student who has been fully admitted to the Graduate School may be allowed to do as much work *in absentia* as may be necessary to enable him to secure the master's degree by doing five or six hours in each of three summer sessions. This privilege will be granted only after the student's work in residence has satisfied the head of the department concerned that the student is able to do the work *in absentia*, and only to such students as have proper facilities (library or laboratory) for doing it. About half of the *in absentia* work must be done between the first and second summer sessions of residence, and most of the remainder between the second and third. Not more than five hours may be done after the third summer session. The regular requirements as to choice of studies and thesis will be enforced in all cases.

With the consent of the department concerned, students who are candidates for the master's degree may count *in absentia* work done in Extension courses given by members of the University Faculty to the extent of twelve hours, allowing two hours for each course of ten lectures.

Under similar conditions, candidates for the master's degree may count *in absentia* work done through correspondence courses given by members of the University Faculty to the extent of fifteen hours, allowing five hours' credit for each correspondence course of forty assignments.

### ENGINEERING DEGREES.

Graduates in engineering in this University, and masters of science who have received their degrees through the Graduate Faculty, are eligible to the professional degrees of civil engineer, electrical engineer, mechanical engineer, mining engineer, or chemical engineer, whichever is appropriate to the undergraduate course taken. Candidates for these degrees must have spent at least three years' actual time in professional practice, in positions of responsibility, in the design, construction or operation of engineering works, and must furnish detailed and satisfactory evidence as to the nature and extent of this practice.



They must submit an engineering thesis, accompanied by detailed explanations, drawings, specifications, estimates, etc., and embodying the results of their own work or observation. If approved, the thesis and all accompanying material become the property of the University.

All theses for any professional degree must be delivered to the Dean of the School of Engineering on or before the 15th day of May.

#### DOCTOR OF PHILOSOPHY.

The degree of doctor of philosophy will be granted on the ground of advanced scholarship, and the performance of independent work in some special line, under the following conditions:

1. The candidate must be a baccalaureate graduate of this University or of some other college or university of good standing; and he must give satisfactory evidence to the Faculty of the Graduate School that he possesses an adequate preparation for graduate work.

2. He must make application to the Dean of the Graduate School before the 1st day of October preceding the commencement at which he intends to present himself for the degree, and must then give satisfactory evidence of his ability to read such German and French as may be necessary for the proper prosecution of his studies.

3. He must have spent at least three full college years in resident graduate work at this or some other approved university; the last year must be spent as a resident student of this University. The time spent in attaining the degree of A. M. may be counted toward satisfying this time condition.

4. He must present a thesis showing the result of original research of a high character, and must pass acceptable examinations, both written and oral, in one chief or major study and two allied, subsidiary or minor studies, not more than two of which may be in the same department. The oral examination is given before the Faculty of the Graduate School, where the candidate may be required to defend his thesis. This thesis, embodying the results of original research in some subject connected with his major study, must be presented to the head of the department in which the work was done, not later than the 1st of May preceding the commencement at which the degree is to be conferred, and if approved by him it is placed on file for inspection in the office of the Dean of the Graduate School for at least two weeks. If the thesis is finally approved, the candidate must, before receiving the degree, deliver at least 100 printed copies of it to the Librarian of the University, or give proper security for the printing of that number; but if the thesis has already been printed, ten copies only need be deposited with the Librarian.

## GRADUATE TEACHING FELLOWSHIPS.

For the encouragement of advanced study and research, the University of Kansas has established fourteen teaching fellowships for graduates of special merit. Each fellowship entitles the holder to \$280. Holders of such fellowships are obliged to teach or render other equivalent services of not more than five hours a week in the respective departments in which they are chosen, and are expected to devote the remainder of their time to investigation and research leading to an advanced degree. These fellowships are awarded to graduates of the University of Kansas, and of other colleges and universities of good standing, who have distinguished themselves for special scholarship and marked ability.

The Board of Regents determines each year the departments in which the fellowships are granted. For the year 1910-'11 fellowships will be awarded in the following subjects, one fellowship in each subject: German, mathematics, education, sociology and economics, Romance languages, English language and literature, chemistry, American history, European history, zoölogy, Latin, botany, philosophy and physiology.

Applications for fellowship must be filed on blanks provided for the same with the Chancellor of the University on or before first day of April of the collegiate year preceding that during which the fellowship is desired. Such applications may be accompanied by recommendations of instructors and by specimens of original work of the applicants, either published or in manuscript.

The applications of the various candidates who are competing for the fellowships are referred to the administrative committee of the Graduate School, which acts as a fellowship committee in consultation with the heads of the departments in which fellowships are granted. The committee, after a consideration of the relative merits of all applicants, nominates the successful candidates and recommends them to the Board of Regents for election. Fellows are elected for a term of one year. However, in special cases, they may be reëlected for one additional year only.

## TEACHING FELLOWSHIPS FOR 1910-'11.

American history, Rosco C. Ingalls, A. B., McPherson College, 1910.

Botany, Benjamin J. Clawson, A. B., Central Holiness University.

Chemistry, Agnes A. Anderson, A. B., Baker University, 1909.

Education, J. H. Hanger, A. B., Baker University, 1910.

English language and literature, Willard A. Wattles, A. B., University of Kansas, 1909.

European history, W. A. Wise, A. B., University of Kansas, 1909.

German, Evadne Laptad, A. B., University of Kansas, 1908.

Latin, E. D. Cressman, A. B., University of Kansas, 1910.

Mathematics, Hazel Hope MacGregor, A. B., Yankton College, A. M., University of Illinois.

Philosophy, John P. Shea, A. B., University of Kansas, 1910.

Physiology, Roy I. Burkett, A. B., University of Kansas, 1910.

Romance languages, Ruth E. Hunt, A. B., University of Kansas, 1910.

Sociology and economics, Howard P. Miller, A. B., University of Kansas, 1910.

Zoölogy, E. A. Baumgartner, A. B., University of Kansas, 1910.

#### UNIVERSITY FELLOWSHIPS FOR GRADUATES OF KANSAS COLLEGES.

In order to promote advanced study at the University of Kansas, and to encourage the graduates of Kansas colleges and universities to continue their work, the University of Kansas offers ten fellowships of \$280 each, to each of ten Kansas colleges for the academic year of 1910-'11 and each year thereafter. The colleges to which fellowships are offered for 1910-'11 are: Baker University, Bethany College, Emporia College, Fairmount College, Friends University, Midland College, McPherson College, Ottawa University, Southwest Kansas College, and Washburn College. This list is subject to change each year by the administrative committee of the Graduate School after consultation with the committee of visitation of colleges.

Candidates for fellowships are to be nominated by the faculties of the respective colleges, from the classes graduating in June before the September when they are to enter upon their fellowships. However, in case there are no satisfactory candidates in the classes referred to, candidates may be nominated from other graduating classes. It is understood that the candidate shall be from among those attaining high scholarship in the respective classes. On or before the 15th of April, 1910, the president of the college receiving the fellowship shall send the name of the candidate nominated by the college faculty or its committee, with a statement of his qualifications, to the Dean of the Graduate School of the University of Kansas.

The candidate's application will be considered by the administrative committee of the Graduate School as in case of other fellowships, and if satisfactory he will be recommended to the Board of Regents for election. A fellow so elected may choose his work, in accordance with the rules of the Graduate School.

in any of the departments offering work in the Graduate School.

Each fellow may be called upon to teach or render other equivalent services for not more than two hours per week in the department in which he chooses his major work.

#### UNIVERSITY FELLOWSHIPS FOR GRADUATES OF KANSAS COLLEGES FOR 1910-'11.

Baker University, Wesley Lacey, A. B., 1910.  
Bethany College, J. E. Boethius, A. B., 1910.  
Emporia College, Lambert Eidson, A. B., 1908.  
Fairmount College, B. C. Ludlam, A. B., 1910.  
Friends University, Faye Dodge, A. B., 1910.  
McPherson College, Diedrich Dalke, A. B., 1910.  
Midland College, Janet M. Thayer, B. S., 1910.  
Ottawa University, Merle M. Moore, B. S., 1910.  
Southwestern College, Gordon Bailey, A. B., 1910.  
Washburn College, Rosa Ethel Miller, A. B., 1909.

#### W. S. GRIESA RESEARCH FELLOWSHIP.

Mr. W. S. Griesa, of the Mount Hope nurseries, Lawrence, has given a fellowship of \$300 for the purpose of investigating the wooly aphis, with a view of finding some method of its extermination. This fellowship in entomology has been awarded for the year 1910-'11 to Mr. W. H. Lorenz, A. B., McPherson College, 1909.

#### FELLOWSHIPS IN INDUSTRIAL CHEMISTRY.

The University believes that the best training for an industrial chemist is pure chemistry. For this reason it is concerned chiefly with advanced practical research on the part of highly trained men. It will accept from corporations or individuals of business standing and integrity fellowships for the solution of industrial problems of public importance. Professor Duncan, who has the responsibility and direction of these industrial researches, will be glad to furnish to manufacturers involved in manufacturing difficulties details of the course to be followed in placing their problems in the hands of the University for solution. The following fellowships have so far been established, the researches in the first six having been completed:

1. The Alden Speare Fellowship in "The Chemistry of Laundering." Five hundred dollars a year for two years, at the end of which time the value of the fellowship was doubled for several months. F. W. Faragher, A. B.
2. The Parke-Davis Fellowship in "The Study of Diastase and the Manufacture of a Scientific Fodder." Five hundred dollars a year for three years. R. C. Shuey, B. S.
3. The National Association of Master Bakers' Fellowship



in "The Chemistry of Bread." Five hundred dollars a year for two years. H. A. Kohman, A. B.

4. The Charles Harding Fellowship in "The Utilization of the Constituents of Waste Buttermilk from the Butter Factories." Five hundred dollars a year for two years. E. L. Tague, A. B.

5. The J. R. Greenlees Fellowship in "The Extraction of Utilizable Constituents from Crude Petroleum." One thousand dollars a year for two years. F. W. Bushong, Ph. D.

6. The Pfaudler Fellowship in "Improvements in Composition of Enamel for Enamel-lined Steel Tanks." Thirteen hundred dollars a year for two years. Archie J. Weith, B. S., and Frank P. Brock, B. S.

7. The Holophane Fellowship in "The Relation between the Optical Properties of Glass and its Chemical Constitution." Fifteen hundred dollars a year for two years. E. Ward Tillotson, Ph. D.

8. The Ash Grove Fellowship in "Improvements in the Manufacture of Portland Cement and Lime." Fifteen hundred dollars a year for two years. J. F. MacKey, Ph. D.

9. The Stubbs-Grenfell Fellowship in "An Investigation into the Extractive Principles of the Glands of Deep-sea Mammals." Six hundred and sixty-six dollars a year for one year and a half. E. R. Weidlein, A. B.

10. The Julius Karpen Fellowship in "An Investigation into the Chemical Treatment of Wood." Fifteen hundred dollars a year for two years. L. N. Redman, A. M.

11. The Pacific Coast Borax Fellowship in "The Discovery of New Utilities for Borax." Seven hundred and fifty dollars a year for one year. B. C. Frichot, B. S.

12. The H. K. Elston Fellowship in "Improvements in the Dyeing of Vegetable Ivory and the Utilization of Vegetable Ivory Waste." J. P. Trickey, B. S.

With nearly all these fellowships there goes a large additional consideration contingent upon success.

### GRADUATE CLUB.

Each year the students of the Graduate School organize a club for general social, literary and scientific work. It helps to make the students acquainted with each other as well as acquainted with the nature of each other's work.

### DEPARTMENTS.

The following departments offer graduate work in the University. In some of them the facilities are adequate for thorough preparation for the doctor's degree, and in all of them the facilities are excellent for work leading to the master's degree:

Anatomy.  
Botany.  
Chemistry.  
Education.  
Economics (see Sociology).  
English Language and Literature.  
Engineering, Civil.  
Engineering, Electrical.  
Engineering, Mechanical.  
Entomology.  
Geology and Mineralogy.  
Germanic Languages and Literatures.  
Greek.  
History and Political Science.  
Industrial Research.  
Latin Language and Literature.  
Law.  
Mathematics.  
Medical Sciences.  
Mineralogy (see Geology).  
Pharmacy.  
Philosophy.  
Physics.  
Physiology.  
Romance Languages and Literatures.  
Sociology and Economics.  
Zoölogy.

## DESCRIPTION OF COURSES IN THE GRADUATE SCHOOL.

### ANATOMY.

Professor SUDLER.  
Assistant Professor SCAMMON.  
Doctor SMITH.

The following courses may be taken by advanced undergraduates also:

150.—DESCRIPTIVE ANATOMY. Seven hours, first semester, daily, 8 to 12:15. The first two weeks are occupied by a study of osteology. This is intended as an introduction to the study of anatomy. The vertebral column is considered from a morphological standpoint and the various bones studied by means of drawings and modeling. The balance of the term is devoted to dissection of the arm and leg and study of various preparations and models illustrating these parts. Professor Sudler and Doctor Smith.

151.—DESCRIPTIVE ANATOMY. Eight hours, second semester, daily, 8 to 12:15. During this term the abdomen, thorax and head are carefully dissected and studied. This course is a continuation of course 150. Professor Sudler and Doctor Smith.

152.—NEUROLOGY AND SENSE ORGANS. Four hours, first term, daily, 8 to 12:15. This is a study of the gross anatomy of the cord and brain by means of dissections, models and slides. The latter are stained by the Weigert method, and are demonstrated by the microscope and lantern. The various nuclei of the cranial nerves and the most important tracts of the cord and brain are considered. Professor Scammon.

### BOTANY.

Professor STEVENS.  
Associate Professor BILLINGS.  
Mr. AGRELIUS, Instructor.\*  
Doctor CHARLES, Instructor.

100.—SPECIAL MORPHOLOGY OF CRYPTOGRAMS. By appointment, five or ten hours, first or second semester, or both semesters. Associate Professor Billings.

101.—MORPHOLOGY AND PHYSIOLOGY OF THE PLANT CELL. By appointment, five hours or ten hours, first or second semester, or both semesters. A study of cell forms, their adaptation to specific functions, and their behavior under varying environ-

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\* Resigned.

ment; nuclear and cell division; reproduction. Professor Stevens.

102.—PLANT ECOLOGY. By appointment, three hours, five hours, or ten hours, throughout the year. The relation of plants to their environment. Field work and reading. Warming's and Schimper's texts and current literature. Professor Stevens.

103.—PROBLEMS IN HISTOGENESIS. By appointment, three hours, five hours, or ten hours, first or second semester, or both semesters. A study of the development of the tissues in selected plants. Professor Stevens.

104.—BOTANICAL SEMINARY. One hour, by appointment. Review and discussion of current botanical work. Reports on assigned subjects. Open to graduates and advanced undergraduates.

The following courses are open to advanced undergraduates also. For description, see "The College."

151.—EXPERIMENTAL PLANT PHYSIOLOGY. Five hours, second semester, 3:30 to 5:30, or by appointment. Professor Stevens.

152.—TAXONOMY OF PHANEROGAMS. Five hours, first semester, 8 to 10. Miss Charles.

153.—MORPHOLOGY OF FUNGI. Three hours, first semester, 10:15 to 12:15. Associate Professor Billings.

154.—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. By appointment, three hours, five hours, ten hours, first or second semester, or both semesters. Professor Stevens.

155.—BACTERIOLOGY. Three hours, first semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Associate Professor Billings.

156.—DAIRY BACTERIOLOGY AND WATER ANALYSIS. Three hours, second semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Associate Professor Billings.

157.—DOMESTICATED PLANTS. Two hours, first semester, Tuesday and Thursday, 3:30 to 4:30, or by appointment. Professor Stevens.

158.—PROBLEMS IN TAXONOMY. Three hours, both semesters, Monday, Wednesday, and Friday, 8 to 10, or by appointment. Prerequisite, course 5. Mr. Agrelius.

159.—TEACHERS' COURSE IN BOTANY. Five hours, 8 to 10, second semester. Mr. Agrelius.

160.—MORPHOLOGY OF THALOPHYTES. Three, five, or ten hours, by appointment. Associate Professor Billings.

161.—ORGANIC EVOLUTION. Three hours, second semester, at 9. This course will present the theory of evolution historically and in the light of recent important evidences derived from ob-



servation and experiment, lectures, collateral reading and recitation. Professor Stevens and Professor McClung.

## CHEMISTRY.

Professor BAILEY.  
Associate Professor CADY.  
Associate Professor BUSHONG.  
Assistant Professor ALLEN.  
Assistant Professor JACKSON.  
Assistant Professor TAGUE.  
Assistant Professor YOUNG.

100.—HISTORY OF CHEMISTRY. Three hours, second semester, by appointment. A course in history of chemistry and the development of chemical theories. Recitations, library work, and the presentation of reports. Not offered in 1911-'12 and alternate years thereafter. Associate Professor Cady.

101.—ANALYTICAL CHEMISTRY. Five hours, either semester, by appointment. A research course. This may include the investigation of some problems in metallurgical or manufacturing processes, the complete investigation of some proposed water supply, the development of new methods in analytical chemistry, or a study and comparison of methods already in use. Professor Bailey.

102.—ORGANIC CHEMISTRY. Five hours, either semester, by appointment. A research course. This course offers, to those who have proper preparation, a chance for more extended study and original investigation. Associate Professor Bushong.

103.—PHYSICAL CHEMISTRY. Five hours, either semester, by appointment. A research course extending over two or more semesters. An opportunity is offered, to those who are sufficiently advanced, to carry on investigations in this most recently developed branch of chemistry. Associate Professor Cady.

104.—ORGANIC PREPARATIONS (advanced). Five hours, either semester, by appointment. Must be preceded by course 60 (College) or its equivalent. A study of organic synthetical methods and ultimate organic analyses. Associate Professor Bushong.

105.—ELECTROCHEMISTRY. Five hours, second semester, by appointment. A laboratory course on the reactions involving oxidation and reduction, electrosyntheses and decompositions, the preparation of chemicals, the reduction of metals from their ores, and the purification of metallurgical products. Must be preceded by course 64 (College). Associate Professor Cady.

106.—CHEMICAL STATISTICS AND DYNAMICS. Three hours, second semester, by appointment. A study of the manner in which chemical reactions take place, and the equilibria which results, from the standpoint of reaction velocities. Prerequisites, gen-

eral physics, calculus, physical chemistry 164 or 165, and organic chemistry. Associate Professor Cady.

107.—THE PHASE LAW. Two hours, second semester, by appointment. A study of chemical equilibria from the standpoint of the phase law of Gibbs. Prerequisite, course 165. Associate Professor Cady.

108.—GAS ANALYSIS. Two hours, first semester, by appointment. A laboratory course. Gill's or Hempel's Gas Analysis. Prerequisite, course 54 (College). Assistant Professor Allen.

109.—OIL ANALYSIS. Three hours, second semester, by appointment. A laboratory course. Prerequisite, course 55 (College). Associate Professor Bushong.

110.—ELECTROLYTIC ESTIMATION OF METALS. Two hours, second semester, by appointment. A laboratory course. Prerequisite, course 54 (College). Associate Professor Cady.

111.—SUGAR ANALYSIS. Two and one-half hours, by appointment. Assistant Professor Jackson.

The following courses may be taken by undergraduates also. For description, see "The College."

154.—QUANTITATIVE ANALYSIS. Five hours, either semester. Assistant Professor Allen.

156.—WATER ANALYSIS. Three hours, second semester, by appointment. Assistant Professor Young.

157.—ASSAYING AND METALLURGICAL ANALYSIS. Five hours, second semester, 3:30 to 5:30, and by appointment. Assistant Professor Tague.

158.—FOOD ANALYSIS. Five hours, either semester, by appointment. Assistant Professor Jackson.

159.—ORGANIC CHEMISTRY I. Five hours, first semester, 3:30 to 5:30. Associate Professor Bushong.

160.—ORGANIC CHEMISTRY II. Five hours, second semester, 3:30 to 5:30. Associate Professor Bushong.

161.—METALLURGY I. Five hours, first semester, at 11:15. Assistant Professor Tague.

162.—METALLURGY II. Five hours, second semester, at 10:15. Assistant Professor Tague.

163.—METALLURGICAL LABORATORY. Three hours, either semester. Assistant Professor Tague.

164.—PHYSICAL CHEMISTRY. Five hours, first semester, at 10:15. Associate Professor Cady.

165.—PHYSICAL CHEMISTRY. Five hours, second semester, at 10:15. Associate Professor Cady.

166.—TEACHERS' COURSE IN CHEMISTRY. Two hours, second semester, by appointment. Professor Bailey.

## . EDUCATION.

Professor JOHNSTON.  
 Professor OLIN.  
 Professor W. H. JOHNSON.  
 Associate Professor SCHWEGLER.  
 Assistant Professor JOSSELYN.

GRADUATE SEMINARIES.—Arranged to give flexibility to the special work of graduate students.

100.—SEMINAR IN EDUCATIONAL PSYCHOLOGY. Three to five hours' credit, second semester, hours by appointment. This course is planned for those students who by predilection and training in systematic psychology are qualified to conduct investigations concerned with the application of psychology to educational procedure. For 1911-'12 the work will have to do with imagery, habits and emotional processes of school children. Professor Johnston.

101.—SEMINAR IN EDUCATIONAL ADMINISTRATION. Three or five hours' credit, second semester, hours by appointment. This course gives opportunity to persons properly qualified to carry on individual and independent investigation of educational systems. For 1911-'12 the phases considered will have to do with secondary and higher institutions and their proper articulation. Professor Olin.

The following courses are also open to advanced undergraduates who are prepared to take them. For description, see catalogue of the School of Education.

159.—EDUCATIONAL CLASSICS. Two hours, first semester, at 10:15. Professor Olin.

160.—EDUCATIONAL CLASSICS. Two hours, second semester, at 9. Professor Johnston.

163.—EDUCATION IN AMERICA. Three hours, second semester, at 9. Professor Olin.

164.—EDUCATIONAL PSYCHOLOGY. Two sections. Three hours, both semesters, at 9 and 2:30. Professor Johnston and Assistant Professor Josselyn.

165.—GENETIC PSYCHOLOGY FOR TEACHERS. Two hours, first semester, at 11:15. Professor Johnston.

171.—EDUCATIONAL PATHOLOGY. Two hours, first semester, at 11:15. Associate Professor Schwegler.

167.—ADVANCED EDUCATIONAL PSYCHOLOGY. Three hours, second semester, at 11:15. Professor Johnston.

168.—PHILOSOPHY OF EDUCATION. Three hours, first semester, at 11:15. Professor Johnston.

166.—EXPERIMENTAL EDUCATION. Two hours, second semester, at 9. Assistant Professor Josselyn.

170.—THE EDUCATION OF FEELING AND ATTENTION. Second semester, hours to be arranged. Professor Johnston.

156.—VOCATIONAL EDUCATION. Two hours, first semester at 9. Assistant Professor Josselyn.

153.—SOCIAL EDUCATION. Two hours, second semester, at 8. Assistant Professor Josselyn.

172.—ELEMENTARY EDUCATION. Three hours, first semester, at 8. Assistant Professor Josselyn.

173.—SUPERVISION OF INSTRUCTION IN ELEMENTARY SCHOOLS. Two hours, first semester, at 8. Assistant Professor Josselyn.

174.—ADMINISTRATION OF PUBLIC EDUCATION. Three hours, second semester, at 8. Assistant Professor Josselyn.

161.—THE SECONDARY SCHOOL. Two hours, second semester, Monday and Wednesday, at 8. Professor W. H. Johnson.

158.—COMPARATIVE STUDY OF EDUCATIONAL SYSTEMS. Three hours, first semester, at 9. Professor Olin.

169.—HIGH-SCHOOL COURSE OF STUDY. Two hours, second semester, at 2:30. Professor Johnston.

### ENGINEERING—CIVIL.

Dean MARVIN.

Associate Professor HOAD.

Associate Professor H. A. RICE.

Associate Professor DALTON.

Assistant Professor CORP.

For equipment, see under School of Engineering.

100.—STRUCTURAL DESIGNING. Five credit hours, first or second semester, by appointment. An advanced course covering cantilever, swing and suspension bridges, skeleton frames for buildings, train-shed roofs, standpipes, and elevated tanks. This course is designed to follow course 15. Lectures, recitations, and detail designing in the drawing room. Associate Professor H. A. Rice.

101.—RESEARCH COURSE. A course of investigation of some matter directly related to civil engineering. This course should run through the year, making ten hours' credit. Arrangements for the course should be made with Dean Marvin.

162.—BRIDGE DESIGNING. Five hours, second semester, daily, 1:30 to 3:30. A study of bridge details and the dimensions of parts. Students work out designs for a plate girder and a simple truss. Must be preceded by course 14. Associate Professor H. A. Rice.

163.—ENGINEERING MATERIALS. Five hours, second semester, by appointment. A study of the methods of manufacture of structural materials and the different means and machines used in their testing. Opportunity will be given for specialization



along some particular line, if desired, and considerable experimental work may be done in the laboratory. Recitations, lectures, library and laboratory work. Assistant Professor Corp.

164.—SANITARY ENGINEERING. Five hours, second semester, by appointment. An advanced course. Prerequisites, courses in water supply and sewerage. A general study of public sanitation, particularly with reference to the water-borne infectious diseases. A study of engineering works for the protection of the public health. Influence of good sewerage, drainage and water supply upon the health of communities. Visits to sanitary engineering works. State control of public water supplies, and of the pollution of streams. Lectures, recitations and reading. Associate Professor Hoad.

165.—REINFORCED CONCRETE. Two and one-half hours, second semester, daily, (b), at 9. Associate Professor H. A. Rice.

166.—MAINTENANCE OF WAY. Five hours, second semester, daily, at 10:15. An advanced course in railway engineering. Associate Professor Dalton.

#### ENGINEERING—ELECTRICAL.

Professor SHAAD.

Mr. JOHNSON, Instructor.

100.—POWER TRANSMISSION AND ELECTRIC RAILWAYS. An advanced course in these subjects, consisting of lectures, assigned readings, and problems, special attention being paid to the engineering features of long-distance power transmission and the electrification of trunk line railways. Second semester, four hours, by appointment. Professor Shaad.

The following courses may be taken by advanced undergraduates also. (See "School of Engineering.")

156.—ELECTRIC LIGHTING. Second semester, (a), five hours, at 11:15. Mr. Johnson.

157.—ELECTRIC POWER TRANSMISSION. Second semester, (a), five hours, at 9. Professor Shaad.

159.—ELECTRIC RAILWAYS. Second semester, (b), five hours, at 9. Professor Shaad.

161.—ELECTRICAL ENGINEERING PRACTICE. Second semester, three hours, Monday, Wednesday, and Friday, at 10:15. Mr. Johnson.

#### ENGINEERING—MECHANICAL.

Professor WALKER.

Assistant Professor CORP.

100.—ADVANCED ENGINEERING LABORATORY. Research work in some line connected with power development, fuel, lubrication or refrigeration, as may be selected in consultation with the in-

structor. Both semesters, five hours, as assigned. Professor Walker.

101.—ADVANCED DESIGNING. The course calls for a complete design in all details of some machine or of a plant for manufacturing or power development purposes. Water-power, steam and gas machinery, and systems of power transmission are given particular attention. Five hours, both semesters, as assigned. Professor Walker.

102.—RESEARCH COURSE. Five hours, each semester, by appointment. A full presentation of some engineering subject to be selected in consultation with the instructor in charge. It may be a subject which is being treated in course 100 or 101. Professor Walker.

The following undergraduate courses, described in the Engineering School catalogue, may be taken for credit by graduates, when accompanied by additional reading and reports:

156.—HYDRAULIC MACHINERY, in conjunction with mechanics 4. First semester, (b), four hours, at 10:15. Assistant Professor Corp.

157.—THERMODYNAMICS. First semester, (a), two and one-half hours, at 9; and

158.—ADVANCED STEAM ENGINEERING. First semester, (b), two and one-half hours, at 9. The two to be taken in order. Professor Walker.

## ENGLISH LANGUAGE AND LITERATURE.

Professor DUNLAP.  
 Professor HOPKINS.  
 Associate Professor O'LEARY.  
 Associate Professor WHITCOMB.  
 Associate Professor SISSON.  
 Associate Professor BRYANT.\*  
 Assistant Professor RAYMOND.  
 Assistant Professor LYNN.  
 Assistant Professor ———.  
 Assistant Professor GRAY.  
 Assistant Professor JOHNSON.

100.—CHAUCER. Two hours, second semester, Tuesday and Thursday, at 10:15. Lectures upon Middle English grammar. Reading of the minor poems of Chaucer. Professor Dunlap.

102.—THE ELIZABETHAN DRAMA, exclusive of Shakspeare. Three hours, second semester, Monday, Wednesday, and Friday, at 10:15. Special attention to Marlowe, Ben Jonson, and Beaumont and Fletcher. Lectures on the dramatic history of the period, and reading of about twenty plays. Assistant Professor Gray.

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\* Died October 20, 1910.

103.—ENGLISH LITERATURE AS INFLUENCED BY OTHER LITERATURES. Three hours, second semester, by appointment. An introductory review of the subject, followed by detailed study of a selected topic. (Not given in 1911-'12.) Associate Professor Whitcomb.

104.—ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY, the age of Milton and Jeremy Taylor. Two hours, first semester, Tuesday and Thursday, at 11:15. Study of the growth of thought and the development of various types of English literature. Two theses. Assistant Professor Raymond.

105.—ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours, second semester, Tuesday and Thursday, at 9. Continuation of course 104. Assistant Professor Raymond.

106.—ENGLISH PROSE OF THE EIGHTEENTH CENTURY. Three hours, first semester, Monday, Wednesday, and Friday, at 9. The authors studied will be Swift, Addison, Steele, Johnson, Goldsmith, and Burke. Lectures, library work, and the preparation of a thesis. Associate Professor O'Leary.

107.—HISTORY OF ENGLISH CRITICISM. Two hours, second semester, by appointment. A brief general review of the development of English criticism will be followed by detailed study of a comparatively limited period. In 1911-'12 chief attention will be given to the critics from about 1760 to 1800, in connection with the Romantic Movement. Associate Professor Whitcomb.

108.—LATER NINETEENTH CENTURY VERSE. Two hours, first semester, by appointment. Special study of the poetry of Arnold, Fitzgerald, Clough, Swinburne, the Rossettis and William Morris. A brief survey of the minor poets of the period and of contemporary verse. (Not given in 1911-'12.) Assistant Professor Johnson.

109.—HISTORY OF THE LITERATURE AND THE TEACHING OF RHETORIC IN ENGLISH. Two hours, first semester, Tuesday and Thursday, at 10:15. Lectures, library reading, and the preparation of a thesis. Associate Professor O'Leary.

110.—ENGLISH PROSODY. One hour, second semester, by appointment. The history of English verse and verse forms. Professor Hopkins.

111.—EPIC POETRY. Three hours, first semester, by appointment. An analysis of the epic poem as a form of literature, with detailed study of three or four masterpieces in English original or translation. (Not given in 1911-'12.) Associate Professor Whitcomb.

112.—SEMINAR. Three to five hours, first semester, by appointment. Original investigation of approved subjects, under

immediate supervision of some instructor in the department. Methodology of English is the subject for first term. Assistant Professor ———.

113.—SEMINAR. Three to five hours, second semester, by appointment. A continuation of course 112. Associate Professor Whitcomb.

The following courses are open to advanced undergraduates also. For description, see "The College."

154.—THE DATA OF ARGUMENT. One hour. Associate Professor Sisson.

155.—LITERARY CRITICISM. Two hours. Professor Hopkins.

156.—VERSIFICATION. One hour. Professor Hopkins.

157.—ESSAY WRITING. Two hours. Associate Professor O'Leary.

158.—PROSE INVENTION. Two hours. Professor Hopkins.

160.—ELEMENTARY OLD ENGLISH (Anglo-Saxon). Three hours. Assistant Professor ———.

161.—ELEMENTARY OLD ENGLISH. Two hours. Assistant Professor ———.

162.—MIDDLE ENGLISH. Two hours. Assistant Professor ———.

163.—HISTORY OF THE ENGLISH LANGUAGE. Three hours. Assistant Professor ———.

164.—ADVANCED OLD ENGLISH. Three hours. Assistant Professor ———.

165.—EARLY ENGLISH. Two hours. Assistant Professor ———.

166.—INTRODUCTION TO PHONETICS. Two hours. Assistant Professor ———.

169.—METHODS OF TEACHING ENGLISH. Three hours. Professor Hopkins. (See course 86, School of Education.)

171.—AMERICAN LITERATURE. Three hours. Professor Hopkins.

172.—AMERICAN LITERATURE. Three hours. Professor Hopkins.

173.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours. Associate Professor O'Leary.

174.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Three hours. Associate Professor O'Leary.

175.—VICTORIAN LITERATURE, exclusive of the novel and Tennyson and Browning. Two hours. Professor Dunlap.

176.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours. Professor Dunlap.



177.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours. Professor Dunlap.

178.—SHAKSPERE. Three hours. Professor Dunlap.

179.—CHAUCER. Three hours. Professor Dunlap.

180.—SHELLEY AND KEATS. Two hours. Professor Dunlap.

181.—BROWNING AND TENNYSON. Three hours. Assistant Professor Lynn.

182.—CARLYLE AND EMERSON. Three hours. Assistant Professor Johnson.

183.—THE MODERN ENGLISH LYRIC. Two hours. Associate Professor Whitcomb.

184.—TECHNIC AND THEORY OF THE DRAMA. Two hours. Associate Professor Whitcomb.

185.—HISTORY OF THE ENGLISH DRAMA. Three hours. Associate Professor Whitcomb.

186.—HISTORY OF THE ENGLISH DRAMA. Two hours. Associate Professor Whitcomb.

187.—THE ENGLISH NOVEL. Three hours. Professor Dunlap.

188.—THE ENGLISH ESSAY. Two hours. Associate Professor O'Leary.

189.—THE DEVELOPMENT OF ENGLISH PROSE. Three hours. Associate Professor Sisson.

## ENTOMOLOGY.

Professor HUNTER.

Assistant Professor GLENN.

100.—ORIGINAL INVESTIGATION. Five hours, throughout the year, by appointment. Experimental work in parthenogenesis. Professor Hunter.

101.—FIELD ENTOMOLOGY, BIOLOGICAL SURVEY. Five hours, throughout the year, including the Summer Session, by appointment. The department of entomology has already completed a survey of insect life in sixteen counties in the northwestern part of the state. This work will be resumed at the opening of the Summer Session and the party will remain in camp until the first week in September. This course consists of a taxonomic study of all existing forms, extended investigations in their life histories, and relations to environments. This course will afford an opportunity to several properly prepared students or teachers in the state who are interested in these problems to join the expedition and continue their work. Arrangements may be made whereby these investigators may obtain representatives from the duplicate material taken to add to their own collections or those of the institutions with which they

are connected. The head of the department invites correspondence from those desiring appointments on this survey. Professor Hunter.

102.—MORPHOLOGICAL DEVELOPMENT. Five hours, throughout the year, by appointment. Problems assigned with reference to the attainments of individual students. Professor Hunter.

103.—ORCHARD LIFE AND FOREST LIFE. Five hours, throughout the year, including the Summer Session, by appointment. The head of the department as state entomologist, in connection with the State Entomological Commission, is conducting a comprehensive and detailed survey of the insect life as it pertains to the orchards and forestry of the state. In this work special attention is given to statistical methods and detailed illustrations of distribution by means of maps and charts. Arrangements have been made whereby a very limited number of well-prepared students may receive appointments for credit on this work. Professor Hunter.

104.—SEMINAR. One hour, throughout the year, by appointment. This course affords an opportunity for the presentation and discussion of current research in this branch of science. During the present year the subject for consideration is the influence of chemical and climatic stimuli upon developing forms.

NOTE.—Students should have a reading knowledge of French and German before taking up these courses.

For further information, see "The College."

150.—GENERAL ENTOMOLOGY. Three hours, first semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Professor Hunter and Mr. Glenn.

151.—GENERAL ENTOMOLOGY. Three hours. Second semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Professor Hunter and Mr. Glenn.

152.—SYSTEMATIC ENTOMOLOGY I. Two hours, first semester, Tuesday and Thursday, 1:30 to 3:30. Mr. Glenn.

153.—SYSTEMATIC ENTOMOLOGY II. Two hours, second semester, Tuesday and Thursday, 1:30 to 3:30. Mr. Glenn.

154.—MORPHOLOGY. Five hours, throughout the year, by appointment. Professor Hunter.

155.—TAXONOMY. Five hours, throughout the year, by appointment. Professor Hunter.

156.—APPLIED ENTOMOLOGY. Two hours, first semester, Tuesday and Thursday, at 10:15. Mr. Glenn.

157.—HOME ECONOMIC ENTOMOLOGY. Two hours, second semester, 3:30 to 5:30. Mr. Glenn.

158.—INSECTS AND DISEASE. Two hours, second semester, 10:15 to 12:15. Professor Hunter.

159.—TEACHERS' COURSE. Three hours, second semester, 3:30 to 5:30. Professor Hunter and Mr. Glenn.

### GEOLOGY AND MINERALOGY.

Professor HAWORTH.  
Assistant Professor TODD.

#### *Geology.*

100.—DYNAMIC GEOLOGY. Graduate students in geology will be provided with opportunity to pursue the study of dynamic geology to any extent desirable. The work may be continued through one or more years, and may be made a major or minor subject for the degree of master of arts or doctor of philosophy. By appointment. Professor Haworth.

101.—PHYSIOGRAPHY. Opportunity is offered graduate students to pursue the study of physiography for one or more years. It may be elected either as a major or minor for the degree of master of arts or doctor of philosophy. By appointment. Professor Haworth.

102.—ECONOMIC GEOLOGY. Opportunity is offered graduate students to pursue the study of the subject throughout the year for one or more years, and to choose it as a major or minor subject for the degree of master of arts or doctor of philosophy. By appointment. Professor Haworth.

A student electing one of the above courses as a major for the degree of doctor of philosophy must devote at least half his time to it for three years, and must present a dissertation embodying the results of original work done in connection therewith, in accordance with the general conditions governing the granting of this degree by this University and with the requirements of the department of geology.

103.—SUMMER FIELD WORK. Opportunity is offered advanced students in geology, either graduate or undergraduate, to do field work in geology in connection with the University Geological Survey of Kansas, under the guidance of the department of geology, for which credit will be given the same as for work done in the classroom and laboratory. By appointment. Professor Haworth.

The following courses may be taken by advanced undergraduates also. For description, see General catalogue.

157.—INVERTEBRATE PALEONTOLOGY I. Five hours, first semester, 1:30 to 3:30. Assistant Professor Todd.

158.—INVERTEBRATE PALEONTOLOGY II. Five hours, second semester, 1:30 to 3:30. Assistant Professor Todd.

*Mineralogy.*

104.—ADVANCED WORK AND ORIGINAL WORK IN MINERALOGY. Three, five or ten hours, throughout the year, by appointment. This course may be chosen by graduate students who have completed courses 1, 50 and 51 in the College and who wish to specialize in the subject of mineralogy. Professor Haworth and Assistant Professor Todd.

105.—ADVANCED WORK AND ORIGINAL WORK IN PETROGRAPHY. Three, five or ten hours, throughout the year, by appointment. This course may be chosen by graduate students who have completed courses 51, 52 and 53 in the College, and who wish to specialize in the subject of petrography. Professor Haworth.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

161.—SYSTEMATIC MINERALOGY. Five hours, first semester, daily, by appointment. Assistant Professor Todd.

162.—PETROGRAPHY. Three hours, first semester, Monday, Wednesday, and Friday, by appointment. Professor Haworth.

163.—PETROGRAPHY. Three hours, second semester, by appointment. Professor Haworth.

164.—VOLCANISM AND METAMORPHISM I. Three hours, second semester, by appointment. Professor Haworth.

## GERMANIC LANGUAGES AND LITERATURES.

Professor CARRUTH.  
Associate Professor ENGEL.  
Assistant Professor CORBIN.  
Assistant Professor KRUSE.  
Assistant Professor CAMPBELL.  
Assistant Professor STURTEVANT.

100.—HISTORY OF THE GERMAN LANGUAGE. Two hours, first semester, Tuesday and Thursday, at 1:30. Introduction to philological study. Lectures and library work. Professor Carruth.

101.—GOTHIC. Three hours, first semester, Monday, Wednesday, and Friday, at 1:30. Phonetics, grammar, and translation. Professor Carruth.

102.—OLD NORSE. Three hours, first semester, and two hours, second semester, by appointment. Noreen's *Altnordische Grammatik*; Holthausen's *Altisländisches Lesebuch*; The Elder Edda. Assistant Professor Sturtevant.

103.—MIDDLE HIGH GERMAN. Five hours, second semester, by appointment. Paul's *Mittelhochdeutsche Grammatik*. *Nibelungenlied*. Hartmann, *Der arme Heinrich*. Selections from Walther von der Vogelweide. Lectures. Associate Professor Engel.



104.—LUTHER AND THE SIXTEENTH CENTURY. Three hours, second semester, by appointment. Reading and grammatical study of the German literature of the Reformation, preceded by an outline of historical German grammar. Professor Carruth. (Not given in 1911-'12.)

105.—GERMANIC MYTHOLOGY. Two hours, second semester, at 1:30. Professor Carruth.

106.—MODERN NORWEGIAN. Two hours, first semester, and three hours, second semester, by appointment. Olsen's Grammar and Reader, and selected texts. Assistant Professor Sturtevant.

107.—OLD HIGH GERMAN. Three hours, first semester, by appointment. Braune's *Althochdeutsche Grammatik und Lesebuch*. Assistant Professor Sturtevant.

108.—OLD SAXON. Two hours, second semester. Doctor Sturtevant.

109.—THEME WRITING. Independent composition in German, journal reports, abstracts, etc. Two hours, second semester. Professor Carruth and Assistant Professor Kruse.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

150.—GERMAN LITERATURE. Five hours, first semester, at 10:15. Professor Carruth.

151.—GERMAN LITERATURE OF THE EIGHTEENTH CENTURY. Five hours, second semester, at 10:15. Professor Carruth.

152.—HISTORY OF GERMAN PROSE FICTION. Five hours, second semester, at 10:15. Professor Carruth.

153.—THE LYRICS AND BALLADS OF GOETHE AND SCHILLER. Three hours, first semester, by appointment. Assistant Professor Corbin.

154.—THE ROMANTIC LYRIC. Continuation of 153. Two hours, second semester, by appointment. Assistant Professor Corbin.

155.—THE REALISTIC DRAMA. Three hours, first semester, at 8. Assistant Professor Kruse.

156.—THE NATURALISTIC DRAMA. Two hours, second semester, at 8. Assistant Professor Kruse.

157.—THE DRAMA OF THE ROMANTICISTS. Two hours, second semester, at 8. Assistant Professor Kruse.

158.—MODERN SWEDISH. Two hours, first semester, and three hours, second semester, by appointment. Fort's *Elementary Swedish Grammar*, Hildebrand's *Läsebok*; Esaias Tegner's *Fritiofssaga* and *Nattwardsbarnen*. Assistant Professor Sturtevant.

159.—TEACHERS' COURSE. Three hours, second semester. Advanced grammar, with theory and practice of language teaching.

Intended especially for those who desire to fit themselves for teaching German in high schools. Open only to the best students of the department. Professor Carruth and Assistant Professor Corbin. (See School of Education 63.)

### GREEK.

Professor WILCOX.  
Associate Professor STERLING.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

150.—THE CLOUDS OF ARISTOPHANES AND MEMORABILIA OF XENOPHON. Three hours, first semester, at 9, or by appointment. Professor Wilcox. (Not given in 1911-'12.)

151.—THE GORGIAS OF PLATO. Two hours, first semester, at 9, or by appointment. Professor Wilcox. (Not given in 1911-'12.)

152.—HOMER'S ODYSSEY. Three hours, second semester, at 9, or by appointment. Professor Wilcox. (Not given in 1911-'12.)

153.—THUCYDIDES. Two hours, second semester, at 9, or by appointment. Professor Wilcox. (Not given in 1911-'12.)

154.—GREEK LITERARY CRITICISM. Three hours, first semester, at 9. Professor Wilcox.

155.—LYRIC POETRY. Two hours, first semester, at 9. Professor Wilcox.

156.—GREEK LITERARY CRITICISM. Two hours, second semester, at 9. Professor Wilcox.

157.—LYRIC POETRY. Three hours, second semester, at 9. Professor Wilcox.

The following courses may be taken as minors:

158.—THE GREEK IN ENGLISH. Three hours, first semester, at 10:15. Associate Professor Sterling.

#### COURSES WHICH REQUIRE NO KNOWLEDGE OF THE GREEK LANGUAGE.

159.—GREEK LITERATURE IN TRANSLATIONS. Two hours, first semester, at 11:15. Professor Wilcox.

160.—GREEK DRAMA IN TRANSLATIONS. Two hours, second semester, at 11:15. Professor Wilcox.

161.—GREEK ARCHITECTURE. Two hours, first semester, at 11:15. Professor Wilcox.

162.—GREEK SCULPTURE AND PAINTING. Three hours, second semester, at 11:15. Professor Wilcox.

## HISTORY AND POLITICAL SCIENCE.

Professor HODDER.  
 Professor BECKER.  
 Associate Professor PATTERSON.  
 Associate Professor DYKSTRA.  
 Assistant Professor CRAWFORD.  
 Assistant Professor DAVIS.

*History.*

100 and 101.—SEMINAR IN EUROPEAN HISTORY. Five hours' credit, first and second semesters, hours by appointment. A study of the sources in some restricted field and the preparation of papers based upon them. Designed to give practical experience in historical investigation. The period studied will be England during the American Revolution. Professor Becker.

102 and 103.—SEMINAR IN AMERICAN HISTORY. Three or five hours' credit, first and second semester, hours by appointment. Practice work with source material. The subjects for investigation will be taken from the history of the trans-Missouri West. Professor Hodder.

*Political Science.*

104 and 105.—SEMINAR IN POLITICAL SCIENCE. Three hours' credit, first and second semesters, hours by appointment. Individual investigation under the direction of the instructor. The topics will be in the field of American political parties and party reform. Open, by permission, to Seniors. Assistant Professor Dykstra.

The following courses are open to advanced undergraduates also. For full description, see "The College."

*History.*

150.—ADVANCED GREEK HISTORY. First semester, two hours, at 11:15. Associate Professor Patterson.

151.—ADVANCED ROMAN HISTORY. Second semester, two hours, at 11:15. Associate Professor Patterson.

152.—MEDIÆVAL CULTURE. Second semester, two hours, at 9. Associate Professor Patterson.

154.—ITALIAN RENAISSANCE. First semester, two hours, at 9. Associate Professor Patterson.

155 and 156.—ENGLISH INSTITUTIONS. First and second semesters, three hours, at 10:15. Assistant Professor Crawford.

157.—THE REFORMATION. First semester, two hours, at 1:30. Professor Becker.

158.—EUROPE IN THE EIGHTEENTH CENTURY. Second semester, two hours, at 1:30. Professor Becker.

159.—FRENCH REVOLUTION AND NAPOLEONIC ERA. First semester, three hours, at 1:30. Professor Becker.

160.—EUROPE IN THE NINETEENTH CENTURY. Second semester, three hours, at 1:30. Professor Becker.

161.—AMERICAN COLONIAL HISTORY. First semester, three hours, at 2:30. Professor Hodder.

162.—THE REVOLUTION AND THE CONSTITUTION. Second semester, three hours, at 2:30. Professor Hodder.

163 and 164.—PRESIDENTIAL ADMINISTRATIONS. First and second semesters, five hours, at 3:30. Professor Hodder.

#### *Political Science.*

150.—INTRODUCTION TO POLITICAL SCIENCE. First semester, three hours, at 9. Associate Professor Dykstra.

151.—EUROPEAN GOVERNMENT. Second semester, three hours, at 11:15. Associate Professor Davis.

152.—AMERICAN CONSTITUTIONAL LAW. First semester, two hours, at 2:30. Professor Hodder.

153.—INTERNATIONAL LAW. Second semester, two hours, at 2:30. Professor Hodder.

154.—GOVERNMENT OF DEPENDENCIES. First semester, two hours, at 11:15. Assistant Professor Davis.

155.—MUNICIPAL GOVERNMENT. Second semester, three hours, at 9. Assistant Professor Dykstra.

156.—POLITICAL THEORIES. Second semester, two hours, at 11:15. Associate Professor Dykstra.

#### INDUSTRIAL RESEARCH.

Professor DUNCAN.

Associate Professor BUSHONG.

1.—THE CHEMISTRY OF LAUNDERING. W. F. Faragher, Ph. D.

2.—THE STUDY OF DIASTASE AND THE MANUFACTURE OF SCIENTIFIC FODDER. Ralph C. Shuey, B. S.

3.—THE CHEMISTRY OF BREAD. Henry A. Kohman, A. B.

4.—THE UTILIZATION OF THE CONSTITUENTS OF WASTE BUTTERMILK FROM THE BUTTER FACTORIES. E. L. Tague, A. M.

5.—THE EXTRACTION OF UTILIZABLE CONSTITUENTS OF CRUDE PETROLEUM. F. W. Bushong, Sc. D.

6.—IMPROVEMENTS IN COMPOSITION OF ENAMEL FOR ENAMEL-LINED STEEL TANKS. Archie J. Weith, B. S., Frank P. Brock, B. S.

Research in the following subjects is now being conducted:

7.—THE RELATION BETWEEN THE OPTICAL PROPERTIES OF GLASS AND ITS CHEMICAL CONSTITUTION. E. Ward Tillotson, Ph. D.



8.—IMPROVEMENTS IN THE MANUFACTURE OF PORTLAND CEMENT AND LIME. J. F. Mackey, Ph. D.

9.—AN INVESTIGATION INTO THE EXTRACTIVE PRINCIPLES OF THE GLANDS OF DEEP SEA MAMMALS. E. R. Weidlein, A. M.

10.—AN INVESTIGATION INTO THE CHEMICAL TREATMENT OF WOOD. L. V. Redman, Ph. D.

11.—THE DISCOVERY OF NEW UTILITIES OF BORAX. B. C. Frichot, M. S.

12.—IMPROVEMENTS IN THE DYEING OF VEGETABLE IVORY AND THE UTILIZATION OF VEGETABLE IVORY WASTE. J. P. Trickey, B. S.

### LATIN LANGUAGE AND LITERATURE.

Professor WALKER.  
Associate Professor OLIVER.  
Assistant Professor MURRAY.

100.—THE TOPOGRAPHY OF ROME. Two hours, second semester, Wednesday and Friday, at 10:15. Lectures and reading. Illustration by the use of photographs and stereopticon. Each member of the class will present written reports on subjects investigated by himself. Associate Professor Oliver.

101.—INVESTIGATION IN ROMAN POLITICAL INSTITUTIONS. Two to five hours, first semester, by appointment. Given only in connection with course 157. This course will be conducted by additional lectures, and by additional investigations by members of the course. Assistant Professor Murray.

102.—LATIN EPIGRAPHY. Three hours, second semester, Monday, Wednesday, and Friday, at 2:30. This course has as its object an acquaintance with the forms and subject matter of Latin inscriptions. Members will be assigned investigations of the contributions of epigraphy to political, constitutional, and economic history, and to other fields. Assistant Professor Murray.

103.—INVESTIGATION IN LATIN EPIGRAPHY. Two to five hours, by appointment. Given only in connection with course 102. Additional investigation of special topics will be expected of members of the course. Assistant Professor Murray.

104.—SEMINAR. Three or five hours, first semester, by appointment. An author or some limited portion of the field of Latin study is chosen each year for special investigation by the graduate students of the department. The work consists largely of papers by members of the course, the object being to train students for original investigation. Latin syntax has been chosen for the year 1911-12. Professor Walker.

105.—SEMINAR (continued). Five hours, second semester, by appointment. A subject for the thesis required of all candidates

for the degree of master of arts is expected to present itself in the course of the work, and in the second term a portion of the time is devoted to the working up of that subject. Professor Walker.

The following courses are open to undergraduates also. For description, see "The College."

150.—ADVANCED PROSE COMPOSITION. Two hours, first semester, at 1:30. Professor Walker.

151.—PLAUTUS. Not given in 1911-'12.

152.—VERGIL'S ECLOGUES AND GEORGICS. Two hours, second semester, at 10:15. Assistant Professor Oliver.

153.—LUCRETIUS. Not given in 1911-'12.

154.—THE ANNALS OF TACITUS. Not given in 1911-'12.

155.—JUVENAL. Three hours, second semester, at 9. Assistant Professor Murray.

156.—LITERATURE OF THE EMPIRE. Three hours, first semester, at 1:30. Associate Professor Oliver.

157.—ROMAN POLITICAL INSTITUTIONS. Three hours, first semester, at 9. Assistant Professor Murray.

158.—CÆSAR'S GALLIC CAMPAIGNS. Three hours, second semester, at 1:30. Professor Walker.

159.—VERGIL. Not given in 1911-'12.

160.—TEACHER'S COURSE IN LATIN. Two hours, first semester, at 10:15. Professor Walker.

#### LAW.

Professor GREEN.

Professor BURDICK.

Professor HIGGINS.

Professor HILL.

Associate Professor HUMBLE.

100.—CONSTITUTIONAL LAW. Five hours' credit. Daily, second semester, at 11:15. General principles governing constitutions; the United States and the states; establishment and amendment of constitutions; construction and interpretation; departmental powers; police power; eminent domain; taxation; civil rights; constitutional guaranties; laws impairing the obligation of contracts; retroactive laws. Professor Green.

101.—COMMON LAW PLEADING. Two and one-half hours' credit. Daily, first half of first semester, at 8. An analytical and historical study of the law of remedies at common law, including ancient modes of trial; special topics assigned, such as assumpsit, trover, trespass, for historical investigation of the development of the law of contracts and of torts. Professor Higgins.

102.—JURISPRUDENCE. Two and one-half hours' credit. Daily, first half of first semester, at 11:15. An analytical study of the elements of jurisprudence, viz.: the science of human relations regulated by positive law; the theories of the state, sovereignty and government; an historical examination of the systems of English and American common law and equity. Selected readings. Special topics and weekly conferences. Associate Professor Humble.

103.—ROMAN LAW. One hour a week for twenty-seven weeks, first semester and first half of second semester, at 9. Development and extension of Roman law; its revival and present influence; the *corpus juris civilis*; the law of persons, of the family, of property, of servitudes, of obligations, of delicts, of inheritance, of procedure, of criminal law, etc. Professor Burdick.

### MATHEMATICS.

Professor YOUNG.  
Associate Professor VAN DER VRIES.  
Associate Professor ASHTON.  
Assistant Professor MITCHELL.  
Assistant Professor PITCHER.  
Assistant Professor WHITE.  
Doctor FRIZELL, Instructor.

100.—THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. Three hours, throughout the year, by appointment. An introduction to the general theory of functions of a complex variable according to Cauchy, Riemann, and Weierstrass. To be given in 1911-'12. Associate Professor Ashton.

101.—THEORY OF FUNCTIONS OF A REAL VARIABLE. Three hours, throughout the year, by appointment. The theory of assemblages, limits, continuity, convergence, derivatives, integrals, etc.; with an introduction to Moore's general analysis. To be given in 1911-'12. Assistant Professor Pitcher.

102.—THEORY OF ELLIPTIC FUNCTIONS. Three hours, throughout the year. Given in 1910-'11; not to be given in 1911-'12. Associate Professor Ashton.

103.—THEORY OF ALGEBRAIC FUNCTIONS AND THEIR INTEGRALS. Three hours, throughout the year. Not to be given in 1911-'12. Professor Young.

104.—CALCULUS OF VARIATIONS. Two hours a week, throughout the year, by appointment. The conditions for minimizing an integral by curves in a plane and in space, with applications to geometry and mechanics. To be given in 1911-'12. Assistant Professor White.

110.—THEORY OF CURVES AND SURFACES. Three hours, throughout the year. Given in 1910-'11; not to be given in 1911-'12. Associate Professor Van der Vries.

111.—DIFFERENTIAL GEOMETRY. Two hours, throughout the year, by appointment. Applications of the calculus to the theory of curves and surfaces. To be given in 1911-'12. Assistant Professor Mitchell.

112.—ALGEBRAIC INVARIANTS AND COVARIANTS. Three hours, throughout the year, by appointment. An introduction to modern methods in the algebra of invariants and covariants; binary forms, Gordan's theorem, apolarity and rational curves, ternary forms and geometrical applications. To be given in 1911-'12. Associate Professor Van der Vries.

113.—SELECTED TOPICS IN HIGHER GEOMETRY. Three hours, throughout the year, by appointment. During 1910-'11 this course was devoted to projective geometry of three dimensions and the metric geometries characterized by certain subgroups of the general projective group. During 1911-'12 the course will relate itself as closely as possible to the research work of the advanced graduate students of the department. Professor Young.

120.—CELESTIAL MECHANICS. Three hours, throughout the year, by appointment. Rectilinear motion, central forces, attraction, and potential, the two-body problem, general integrals of the problem of  $n$  bodies, the three-body problem, perturbations. Moulton's Celestial Mechanics and collateral reading. Not to be given in 1911-'12. Assistant Professor Pitcher.

The following courses may also be taken by advanced undergraduates. For description, see "The College."

150.—ANALYTIC MECHANICS. First semester, three hours, at 10:15. Associate Professor Van der Vries.

151.—DIFFERENTIAL EQUATIONS. Second semester, three hours, at 10:15. Associate Professor Van der Vries.

152.—ADVANCED CALCULUS I. First semester, two hours, at 11:15. Assistant Professor Pitcher.

153.—ADVANCED CALCULUS II. Second semester, three hours, at 11:15. Assistant Professor Pitcher.

156.—HIGHER ALGEBRA II. Second semester, two hours, at 9. Assistant Professor Mitchell.

157.—COMPLEX NUMBERS. Second semester, two hours, at 10:15. Assistant Professor White.

158.—THEORY OF NUMBERS. Second semester, two hours, at 11:15. Doctor Frizell.

160.—PROJECTIVE GEOMETRY. Throughout the year, three hours, at 9. Professor Young.

165.—FOURIER'S SERIES. Throughout the year, two hours, at 10:15. Associate Professor Ashton.

189.—TEACHERS' COURSE. First semester, two hours. Associate Professor Mitchell.



## PHARMACY.

Professor SAYRE.

Assistant Professor EMERSON.

For equipment, see under School of Pharmacy.

100.—PHYTOCHEMISTRY (Plant Chemistry). Five hours, first or second semester. Original investigation and research work on the chemical constituents of plants, dealing especially with such constituents as exert a marked physiological action when introduced into the animal economy. Professor Sayre and Assistant Professor Emerson.

101.—ADVANCED COURSE IN THE CHEMISTRY OF DIGESTION. Lectures, recitation and laboratory work on the chemistry of digestion. The last half semester devoted to research work on the digestion of foodstuffs. Five hours, first semester. Professor Sayre and Assistant Professor Emerson.

The following courses are open to advanced undergraduates also. For description, see "The College."

150.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. Assistant Professor Emerson.

151.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Professor Sayre and Assistant Professor Emerson.

## PHILOSOPHY.

Professor TEMPLIN.

Professor BOODIN.

Assistant Professor ROGERS.

100.—SEMINAR. Five or ten hours, first semester, by appointment. Opportunity will be given graduate students to continue in a more exhaustive manner the study of any of the subjects offered in the College courses, and to engage in original investigation of unsolved problems. The work will be arranged to suit the special needs of individual students and will be under the immediate supervision of some instructor in the department.

101.—SEMINAR. Five or ten hours, second semester, by appointment. A continuation of the preceding course.

102.—PSYCHOLOGICAL SEMINAR. Three, five, or ten hours, first semester. Opportunity is given graduate students for the advanced study of special topics in psychology. The organization of the seminar will take different forms to meet the needs of its members. Individual study of theoretical questions will be provided for by individual appointment. Group study of theoretical questions will be conducted through weekly meetings. For those who wish to undertake laboratory research, a schedule will be arranged for exchange of hours in participating in turn as experimenter and as subject, and for occasional meetings for the discussion of methods and results.

103.—PSYCHOLOGICAL SEMINAR. Three, five, or ten hours, second semester. A continuation of course 102.

The following courses are also open to advanced undergraduates. For description, see General catalogue.

150.—SENSATION AND PERCEPTION. Three hours, first semester, in alternate years; given in 1911-'12, 1:30 to 3:30. Assistant Professor Rogers.

151.—PSYCHOLOGY OF THOUGHT. Three hours, second semester, in alternate years; given in 1911-'12, 1:30 to 3:30. Assistant Professor Rogers.

152.—FEELING AND WILL. Three hours, first semester, in alternate years; given in 1912-'13, 1:30 to 3:30. Assistant Professor Rogers.

153.—COMPARATIVE PSYCHOLOGY. Three hours, second semester, in alternate years; given in 1910-'11, 1:30 to 3:30. Assistant Professor Rogers.

154.—SOCIAL PSYCHOLOGY. Two hours, first semester, at 9. Professor Boodin.

160.—HISTORY OF PHILOSOPHY. Three hours, first semester, at 10:15. Professor Boodin.

161.—HISTORY OF PHILOSOPHY. Three hours, second semester, at 10:15. Professor Boodin.

162.—PHILOSOPHICAL CLASSICS. Two hours, first semester, at 10:15. Professor Boodin.

163.—PHILOSOPHICAL CLASSICS. Two hours, second semester, at 10:15. Professor Boodin.

164.—THE THEORY OF KNOWLEDGE. Three hours, first semester, at 9. Professor Boodin.

165.—METAPHYSICS. Three hours, second semester, at 9. Professor Boodin.

166.—THE PHILOSOPHY OF RELIGION. Two hours, second semester, at 9. Professor Boodin.

170.—SYSTEMATIC ETHICS. Two hours, first semester, at 8. Professor Templin.

171.—PRACTICAL ETHICS. Two hours, second semester, at 8. Professor Templin.

172.—ESTHETICS. Two hours, second semester, at 8. Professor Templin.

## PHYSICS AND ASTRONOMY.

Professor KESTER.  
Associate Professor M. E. RICE.  
Assistant Professor STIMPSON.  
Mr. T. T. SMITH, Instructor.

*Physics.*

100.—GRADUATE LABORATORY. Two to five credit hours, either semester, by appointment. Professor Kester and Associate Professor M. E. Rice.

101.—THEORETICAL MECHANICS. Three hours, through first and second semesters, by appointment. Lectures, with a problem hour each week. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. (Not offered in 1911-'12.)

102.—THEORY OF HEAT AND THERMODYNAMICS. Two hours, through first and second semesters, by appointment. Lectures and problems. A development of Gibbs's ideas of thermodynamic potentials and of equilibrium in systems containing several components in various phases. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. (Not offered in 1911-'12.)

103.—THEORY OF ELECTRICITY. Three hours, through first and second semesters, by appointment. Lectures and problems. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. Professor Kester.

104.—ADVANCED OPTICS. Two hours, through first and second semesters, by appointment. Lectures and problems. A development of the electromagnetic theory of light, of the Abbe theory of optical instruments, etc. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. Associate Professor M. E. Rice.

Courses 101, 102, 103 and 104 together form a two-year cycle developing the fundamental parts of physics in a rigorous and detailed manner. Other courses, covering more special (in some cases newer) topics, are listed below.

105.—ELECTRON THEORY. Three hours, first semester, by appointment. Theory of electromagnetic mass and of conduction of electricity through metals. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. Professor Kester.

106.—OSCILLATORY ELECTRIC CURRENTS AND ELECTROMAGNETIC WAVES. Three hours, second semester, by appointment. Lectures and problems, giving the principles which underlie wireless telegraphy and telephony. Prerequisites, physics 7, 8, and 9, or equivalents, and differential equations. Associate Professor M. E. Rice.

107.—RESEARCH AND THESIS. Three to ten credit hours, either semester. Students who are carrying on original investigation (either experimental or theoretical) in physics will

register in this course. Professor Kester and Associate Professor M. E. Rice.

108.—THE NEWTONIAN POTENTIAL FUNCTION AND HARMONIC ANALYSIS. Three hours, through first and second semesters, by appointment. Mr. T. T. Smith. (Not offered in 1911-'12.)

The following courses may be taken by advanced undergraduates also. For description, see General catalogue.

150.—MECHANICS AND HEAT. Three hours, first semester, by appointment. Professor Kester.

151.—LIGHT AND RADIANT ENERGY. Three hours, second semester, by appointment. Mr. T. T. Smith. (Not offered in 1911-'12.)

152.—ELECTRICITY. Three hours, first semester, Monday, Wednesday, and Thursday, at 11:15. Associate Professor M. E. Rice.

153.—RADIOACTIVITY AND CONDUCTION OF ELECTRICITY THROUGH GASES. Three hours, second semester. Professor Kester.

154.—PHYSICS LABORATORY. Mechanics and heat. Two to five credit hours, by appointment. Professor Kester and Associate Professor M. E. Rice.

155.—PHYSICS LABORATORY. Light and radiant heat. Two to five credit hours, by appointment. Mr. T. T. Smith.

156.—PHYSICS LABORATORY. Electricity. Two to five credit hours, by appointment. Associate Professor M. E. Rice. fessor Rice.

157.—PHYSICS LABORATORY. Radioactivity. Two to five credit hours, by appointment. Professor Kester.

158.—ADVANCED LABORATORY. Two to five credit hours, first semester. Professor Kester and Associate Professor M. E. Rice.

159.—ADVANCED LABORATORY. Two to five credit hours, second semester, by appointment. Professor Kester and Associate Professor M. E. Rice.

160.—OPTICAL INSTRUMENTS. Three hours, first semester, by appointment. Associate Professor M. E. Rice.

162.—TEACHERS' COURSE IN PHYSICS I. Mechanics and heat. Two hours, first semester, at 4:30. Professor Kester.

163.—TEACHERS' COURSE IN PHYSICS II. Sound, light and electricity. Two hours, second semester, at 4:30. Professor Kester.

164.—RECENT ADVANCES IN PHYSICS I. One hour, first semester, by appointment.

165.—RECENT ADVANCES IN PHYSICS II. One hour, second semester, by appointment.



166.—PHYSICS COLLOQUIUM. One hour, either semester, by appointment.

*Astronomy.*

170.—INTRODUCTION TO ASTROPHYSICS. Three hours, first term, by appointment. A study of the principles, methods and instruments employed in investigating the physical conditions of celestial bodies. Lectures and laboratory work. Prerequisites: Astronomy 1 or 2, physics 5 and 6 or equivalent, and analytic geometry and calculus. Associate Professor M. E. Rice.

171.—INTRODUCTION TO CELESTIAL MECHANICS. Three hours, second term, by appointment. Prerequisites: Astronomy 1 or 2, physics 5 and 6 or equivalent, and analytic geometry and calculus. Associate Professor M. E. Rice.

Open to undergraduates and graduates.

### PHYSIOLOGY.

Professor HYDE.

Miss WALLING, Instructor.

100.—PHYSIOLOGY. Ten hours, second half of first semester, 8 to 12:15, and all of second semester, 8 to 11:15. Advanced experimental physiology. Open to graduates who have taken not less than a year of anatomy and have given evidence that they are prepared for it. Recitations and lectures, with demonstrations, conferences and journal club, and laboratory experimental work. Professor Hyde.

101.—PHYSIOLOGY. Five hours, either semester or both, by appointment. Original research, open to graduates who have had either course 51 or 100 in physiology. Professor Hyde.

102.—SEMINAR OF EXPERIMENTAL PHYSIOLOGY. Two to five hours each semester, by appointment. A research course for advanced students who are prepared for it. Professor Hyde.

The following course is open to advanced undergraduates also. See General catalogue.

150.—ADVANCED EXPERIMENTAL PHYSIOLOGY. Five hours, either semester or both, by appointment. Professor Hyde.

### ROMANCE LANGUAGES.

Professor GALLOO.

Assistant Professor NEUEN SCHWANDER.

Assistant Professor OWEN.

Miss STANTON.

*French.*

100.—OLD FRENCH. Three hours, first semester. Phonology and morphology of old French, with some discussion of syntax. *Le Pèlerinage de Charlemagne à Jérusalem; Aucassin et Nicolette.* Must be preceded by courses 161 and 162 or their equivalents. Professor Galloo.

101.—HISTORY OF THE FRENCH LANGUAGE. Three hours, second semester, by appointment. Its rise from Low Latin; the addition from other sources; its growth and modifications. Professor Galloo.

102.—PROVENÇAL. Two hours, first semester, by appointment. Grandgent's Provençal Phonology and Morphology and Bartsch's *Chrestomathie Provençale*. Assistant Professor Neuen Schwander.

103.—MEDIÆVAL FRENCH LITERATURE. Three hours, second semester, by appointment. From the first literary monuments to the Renaissance. Professor Galloo.

104.—FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Two hours, first semester, by appointment. The Renaissance in French Literature. The beginnings of Classicism. The *Pléiade*. Professor Galloo.

105.—MOLIERE. Three hours, first semester, by appointment. Same course as 8, with additional requirements. Study of Molière; his life and surroundings; his plays—their sources and influence. One or more essays will be written, preferably in French. Professor Galloo.

106.—THE LITERARY MOVEMENT IN THE SECOND HALF OF THE NINETEENTH CENTURY. Three hours, second semester, by appointment. The reaction against Romanticism, the Parnassiens, realism and naturalism. The reaction against the scientific spirit; idealism and symbolism. The rise and growth of the new literary criticism. A large amount of reading is required. Reports and an essay in French. Professor Galloo.

107 and 108.—SEMINAR. Five hours each semester, by appointment. Research course for advanced students, who will be given an opportunity, under the immediate supervision of the department, to carry on investigation in the field of Romance linguistics or literature. Professor Galloo, Associate Professor Bassett.

The following courses are open to undergraduates also. For description, see "The College."

152.—HISTORY OF EARLY FRENCH LITERATURE. Three hours, first semester, Monday, Wednesday, and Friday, at 9. Professor Galloo.

153.—HISTORY OF MODERN FRENCH LITERATURE. Three hours, second semester, Monday, Wednesday, and Friday, at 9. Professor Galloo.

154.—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours, second semester, by appointment. Miss Stanton.

155.—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours, second semester, by appointment. Assistant Professor Neuen Schwander.

156.—THE ROMANTIC SCHOOL (1800-1835). Two hours, first semester, Monday, Wednesday, and Friday, at 9. Professor Galloo.

157.—THE ROMANTIC SCHOOL (1800-1835). Two hours, second semester, Tuesday and Thursday, at 9. Professor Galloo.

158.—DEVELOPMENT OF THE FRENCH NOVEL. Two hours, first semester, Monday, Wednesday, and Friday, at 9. Professor Galloo.

160.—THE FRENCH DRAMA. Three hours, first semester, Monday, Wednesday, and Friday, at 1:30. Miss Stanton.

161.—OLD FRENCH. Two hours, first semester, by appointment. Professor Galloo.

162.—OLD FRENCH. Two hours, second semester, by appointment. Professor Galloo.

163.—TEACHER'S COURSE. Three hours, second semester, by appointment. Professor Galloo.

### *Spanish.*

100.—EARLY SPANISH. Two hours, second semester, by appointment. Menéndez Pidal's Manual de gramática historica española; Poema del Cid (Menéndez Pidal ed.) and Poema de Fernán González (Marden ed.). Assistant Professor Owen.

The following courses are open to undergraduates also. For description, see "The College."

152.—DON QUIXOTE. Three hours, second semester, at 2:30. Assistant Professor Owen.

153.—HISTORY OF EARLY SPANISH LITERATURE. Three hours, first semester, at 1:30. Assistant Professor Owen.

154.—HISTORY OF MODERN SPANISH LITERATURE. Three hours, second semester, at 1:30. Assistant Professor Owen.

155.—THE SPANISH NOVEL OF THE SIXTEENTH AND SEVENTEENTH CENTURIES. Two hours, first semester, by appointment. Assistant Professor Owen.

156.—THE CLASSIC SPANISH DRAMA. Two hours, second semester, by appointment. Assistant Professor Owen.

### SOCIOLOGY AND ECONOMICS.

Professor BLACKMAR.  
Associate Professor BOYNTON.  
Associate Professor CONE.\*  
Assistant Professor HELLEBERG.  
Assistant Professor HUBBARD.

100.—SEMINAR OF SOCIOLOGY AND ECONOMICS. Two to ten hours, each semester, by appointment. This is a research course for advanced students. Applicants for admission to the seminar

\* Resigned.

must satisfy the instructors of their preparation and ability to undertake original investigation. Each student must pursue a definite line of work under the direction of one of the instructors. Professor Blackmar, Associate Professor Boynton, Assistant Professor Helleberg, and Assistant Professor Hubbard.

101.—AMERICAN AND EUROPEAN CHARITIES. Five hours, by appointment. Research course. A study of charities administration in the United States and some of the principal cities of Europe. Personal investigation of American charitable institutions with special reference to methods of state control. Professor Blackmar.

102.—PREPARATION FOR PUBLIC SERVICE. Three hours, second semester, Monday, Wednesday, and Friday, by appointment. A study of the administration of charitable and penal institutions. The business administration of public affairs. Preparation for civil service. A research course in the library supplemented by the investigation of institutions by visitation. Lectures by experienced officials on institutional administration and practical politics. For advanced students who desire to prepare for public service. Professor Blackmar.

103.—BUSINESS ORGANIZATION AND MANAGEMENT. Two hours, second semester, Tuesday and Thursday, at 9. Designed for advanced students in economics and sociology who desire to make special preparation for business life. The course treats of methods of general business organization and management as well as the organization of the business of the bank, the factory, and the general office. The organization and working of the industrial and commercial corporation will be given special consideration. Attention will be given to special examples of industries as types to illustrate the forms of modern business organizations and methods. Associate Professor Boynton.

104.—SOCIAL AND ECONOMIC STATISTICS. Two hours, second semester, Tuesday and Thursday, at 10:15. A practical course in social problems by the statistical method. Students are instructed in the technique of statistics and the scope and meaning of statistical inquiry. A practical knowledge is derived from the handling of statistical data and in the construction of statistical tables, tabulations, etc. By the preparation of diagrams, charts, etc., in the laboratory, the graphic method is also introduced. Should be preceded by sociology 50 and economics 1. Associate Professor Boynton.

105.—AMERICAN ETHNOLOGY. Five hours, by appointment. Research course in the natural races of America. Migration and geographical distribution of tribes. Comparative characteristics of tribes and ethnic groups. Government and organization of tribes. The beginnings of civilization, the food supply, and the progress in the industrial arts. Professor Blackmar.



106.—ECONOMIC THEORY, TO ADAM SMITH. Two hours, either semester, by appointment. The growth of thought about economic matters in ancient, mediæval and modern times, down to about the end of the eighteenth century, is studied, chiefly from the works of the original writers. This study furnishes many points for suggestive contrast and comparison between earlier and later theories and explains many features of modern economic theories. Associate Professor ———.

107.—ECONOMIC THEORY, SINCE ADAM SMITH. Two hours, either semester, by appointment. The extensive economic literature of the nineteenth century is the subject matter of this course. The important economists are all studied at first hand, and occasional attention is given to the works of minor writers, in cases where their writings contain important germs of theories later developed by others of greater prominence. Associate Professor ———.

108.—ECONOMIC RESOURCES AND ACTIVITIES OF EUROPEAN COUNTRIES. Two hours, second semester, Tuesday and Thursday, at 9. A study of the natural resources of industrial nations and their present economic life and activity. The present condition of agriculture, mining, manufacturing, and industry in general, together with the internal trade and foreign commerce of each country, will be investigated and the governmental policies designed to encourage industry and trade will also be a feature of the course. Associate Professor Boynton.

109.—ECONOMIC HISTORY OF EUROPE. Three hours, by appointment. A research and lecture course open to graduate students who have already had at least economics I, II, and III, or their equivalent. The scope of work will attempt to cover the threefold economic development of the continent as shown in the agricultural, industrial and commercial evolution of the principal nations. Special phases of the economic life of Europe within the above-mentioned fields may also be assigned for purposes of investigation to graduate students. Associate Professor Boynton.

The following courses may be taken by undergraduates also. For full description of courses, see General catalogue.

150.—ELEMENTS OF SOCIOLOGY. Three hours, first semester, Monday, Wednesday, and Friday, at 1:30. Professor Blackmar.

151.—APPLIED SOCIOLOGY. Three hours, second semester, Monday, Wednesday, and Friday, at 1:30. Professor Blackmar.

152.—SOCIAL PATHOLOGY. Two hours, first semester, Tuesday and Thursday, at 1:30. Assistant Professor Helleberg.

153.—REMEDIAL AND CORRECTIVE AGENCIES. Two hours, second semester, Tuesday and Thursday, at 1:30. Assistant Professor Helleberg.

154.—SOCIALIZATION AND SOCIAL CONTROL. Three hours, first

semester, Monday, Wednesday, and Friday, at 2:30. Assistant Professor Helleberg.

155.—PSYCHOLOGICAL SOCIOLOGY. Three hours, second semester, Monday, Wednesday, and Friday, at 2:30. Assistant Professor Helleberg.

157.—SOCIALISM. Two hours, first semester, Tuesday and Thursday, at 2:30. Assistant Professor Helleberg.

158.—ANTHROPOLOGY. Two hours, first semester, Tuesday and Thursday, at 8. Professor Blackmar.

159.—ETHNOLOGY. Two hours, second semester, Tuesday and Thursday, at 8. Professor Blackmar.

150.—MONEY AND CREDIT. Two hours, first semester, Tuesday and Thursday, at 10:15. Associate Professor Boynton.

151.—BANKING. Two hours, second semester, Tuesday and Thursday, at 10:15. Associate Professor Boynton.

152.—FINANCIAL HISTORY OF THE UNITED STATES. Three hours, second semester, Monday, Wednesday, and Friday, at 10:15.

153.—PUBLIC FINANCE. Three hours, first semester, Monday, Wednesday, and Friday, at 2:30. Associate Professor ———.

154.—CORPORATE FINANCE. Two hours, first semester, Tuesday and Thursday, at 2:30. Assistant Professor Hubbard.

156.—ECONOMICS OF DISTRIBUTION. Two hours, first semester, Tuesday and Thursday, at 3:30. Assistant Professor Hubbard.

157.—HISTORY AND DEVELOPMENT OF TRANSPORTATION. Two hours, first semester, Tuesday and Thursday, at 11:15. Associate Professor Boynton.

158.—RAILWAY RATES AND GOVERNMENT REGULATION. Three hours, second semester, Monday, Wednesday, and Friday, at 11:15. Associate Professor Boynton.

159.—HISTORY OF TRADE-UNIONISM AND LABOR ORGANIZATION. Three hours, first semester, Monday, Wednesday, and Friday, at 11:15. Associate Professor Boynton.

160.—LABOR PROBLEMS. Two hours, second semester, Tuesday and Thursday, at 11:15. Associate Professor Boynton.

161.—INSURANCE. Two hours, second semester, Tuesday and Thursday, at 2:30. Assistant Professor Hubbard.

162.—ACCOUNTING. Two hours, second semester, Tuesday and Thursday, at 2:30. Associate Professor ———.

163.—ECONOMICS OF AGRICULTURE. Two hours, second semester, Tuesday and Thursday, at 2:30. Assistant Professor Hubbard.

164.—CONTEMPORARY SOCIETY IN THE UNITED STATES. Two hours, second semester, Tuesday and Thursday, at 3:30. Assistant Professor Helleberg.

## ZOOLOGY.

Professor McCLUNG.

Professor DYCHE.

Assistant Professor BAUMGARTNER.

Assistant Professor MOODIE.

Assistant Professor SCAMMON.

100.—SEMINAR. Students working for a degree with the major in the department of zoölogy will register in this course for credit in work done in preparation for their theses. Credit will be given only upon a satisfactory presentation of the subject matter of the thesis before the department Faculty.

101.—ADVANCED WORK IN MORPHOLOGICAL ZOÖLOGY. Five or ten hours, throughout the year. Professor McClung.

102.—ADVANCED WORK IN SYSTEMATIC AND DESCRIPTIVE ZOOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

103.—ADVANCED WORK IN HISTOGENESIS AND ORGANOGENESIS. Five or ten hours, throughout the year, by appointment. Professor McClung.

104.—ADVANCED WORK IN CYTOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

105.—ADVANCED WORK IN VERTEBRATE PALEONTOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

106.—MUSEUM WORK AND METHODS. Five hours, by appointment, first semester. Professor Dyche.

107.—COMPARATIVE ANATOMY AND OSTEOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

The following courses may be taken by advanced undergraduates also. For description, see College catalogue.

151.—FIELD WORK AND LIFE HISTORIES. Three hours, second semester, Monday and Friday at 3:30, and Saturday morning. Assistant Professor Baumgartner.

152.—ORGANIC EVOLUTION. Three hours, second semester, at 11. Professor McClung and Professor Stevens.

153.—HISTOLOGY, OR MICROSCOPIC ANATOMY. Five hours, first semester, 3:30 to 5:30. Assistant Professor Baumgartner.

154.—CYTOLOGY, OR CELLULAR BIOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

155.—EMBRYOLOGY. Five hours, second semester, by appointment. Assistant Professor Scammon.

156.—PALEOZOÖLOGY. Five hours, by appointment, first or second semester. Professor McClung or Assistant Professor Moodie.

## II. *The College of Liberal Arts and Sciences.*

### FACULTY.

- FRANK STRONG, PH. D., President.
- WILLIAM H. CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.
- OLIN TEMPLIN, A. M., Dean, and Professor of Philosophy.
- EPHRAIM MILLER, PH. D., Emeritus Professor of Mathematics and Astronomy.
- EDGAR H. S. BAILEY, PH. D., Professor of Chemistry and Metallurgy.
- ALEXANDER M. WILCOX, PH. D., Professor of Greek Language and Literature.
- LEWIS L. DYCHE,\* M. S., Professor of Systematic Zoölogy.
- FRANK W. BLACKMAR, PH. D., Professor of Sociology and Economics.
- CHARLES G. DUNLAP, LITT. D., Professor of English Literature.
- EDWIN M. HOPKINS, PH. D., Professor of Rhetoric and English Language.
- FRANK H. HODDER, PH. M., Professor of American History and Political Science.
- ERASMUS HAWORTH, PH. D., Professor of Geology.
- ARTHUR T. WALKER, PH. D., Professor of Latin Language and Literature.
- WILLIAM C. STEVENS, M. S., Professor of Botany.
- WILLIAM A. GRIFFITH, Professor of Drawing.
- EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
- JOHN E. BOODIN, PH. D., Professor of Philosophy.
- IDA H. HYDE, PH. D., Professor of Physiology.
- JAMES NAISMITH, M. D., Professor of Physical Education.
- SAMUEL J. HUNTER, A. M., Professor of Entomology.
- CLARENCE E. MCCLUNG, PH. D., Professor of Zoölogy.
- MERVIN T. SUDLER, PH. D., Professor of Anatomy.
- CARL L. BECKER, PH. D., Professor of European History.
- FREDERICK E. KESTER, M. E., Professor of Physics.
- CHARLES M. HARGER, LITT. D., Director and Lecturer in Journalism.
- EDNA D. DAY, PH. D., Professor of Home Economics.

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\* Absent on leave.



- JOHN W. YOUNG, PH. D., Professor of Mathematics.  
MILES W. STERLING, A. M., Associate Professor of Greek.  
R. D. O'LEARY,\* A. B., Associate Professor of Rhetoric.  
HANNAH OLIVER, A. M., Associate Professor of Latin.  
ELMER F. ENGEL,\* A. M., Associate Professor of German.  
SELDEN L. WHITCOMB, A. B., Associate Professor of English Literature.  
HAMILTON P. CADY, PH. D., Associate Professor of Chemistry.  
MARTIN E. RICE, M. S., Associate Professor of Physics and Electrical Engineering.  
RALPH W. CONE,† A. M., Associate Professor of Sociology and Economics.  
JOHN N. VAN DER VRIES, PH. D., Associate Professor of Mathematics.  
FREDERICK H. BILLINGS, PH. D., Associate Professor of Botany and Bacteriology.  
DAVID L. PATTERSON, B. S., Associate Professor of History.  
LOUIS E. SISSON, A. M., Associate Professor of Rhetoric.  
CLARENCE A. DYKSTRA, A. B., Associate Professor of History.  
FRANK E. BRYANT,‡ PH. D., Associate Professor of English.  
ARTHUR J. BOYNTON, A. M., Associate Professor of Economics.  
CHARLES H. ASHTON, PH. D., Associate Professor of Mathematics.  
FRANCIS W. BUSHONG, S. D., Associate Professor of Chemistry.  
ALBERTA L. CORBIN, PH. D., Assistant Professor of German.  
MARGARET LYNN, A. M., Assistant Professor of English.  
EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.  
MARY C. FISH, Assistant Professor of Physical Education.  
WILLIAM J. BAUMGARTNER, A. M., Assistant Professor of Zoölogy and Histology.  
HENRY O. KRUSE, A. M., Assistant Professor of German.  
ELISE NEUEN SCHWANDER,\* A. B., Assistant Professor of Romance Languages.  
CHARLES H. GRAY, PH. D., Assistant Professor of English Language.  
LEON N. FLINT, A. B., Assistant Professor of Journalism.  
CLARENCE C. CRAWFORD, PH. D., Assistant Professor of European History.  
EARL W. MURRAY, A. B., Assistant Professor of Latin.  
HENRY L. JACKSON, B. S., Assistant Professor of Chemistry.  
JAMES E. TODD, A. B., Assistant Professor of Geology and Mineralogy.  
PRESSLEY A. GLENN, A. M., Assistant Professor of Entomology.

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\* Absent on leave.

† Resigned.

‡ Died October 20, 1910.

- JAMES A. CAMPBELL, A. M., Assistant Professor of German.  
 WILLIAM S. JOHNSON, PH. D., Assistant Professor of English Literature.  
 WILLIAM P. WARD, A. B., Assistant Professor of Romance Languages.  
 ROY LEE MOODIE, PH. D., Assistant Professor of Zoölogy.  
 DAVID C. ROGERS, PH. D., Assistant professor of Psychology.  
 EDWARD M. BRIGGS, A. M., Assistant Professor of German.  
 ALBERT M. STURTEVANT, PH. D., Assistant professor of German.  
 WILLIAM H. TWENHOFEL, A. M., Assistant Professor of Geology.  
 ARTHUR L. OWEN, A. M., Assistant Professor of Romance Languages.  
 RICHARD E. SCAMMON, PH. D., Assistant Professor of Anatomy and Zoölogy.  
 ULYSSES G. MITCHELL, PH. D., Assistant Professor of Mathematics.  
 ARTHUR D. PITCHER, PH. D., Assistant Professor of Mathematics.  
 MARION B. WHITE, PH. D., Assistant Professor of Mathematics.  
 LULU GARDNER, A. B., Assistant Professor of Rhetoric.  
 HELEN G. JONES, § PH. B., Assistant Professor of German.  
 HERMAN C. ALLEN, A. M., Assistant Professor of Chemistry.  
 EDGAR L. TAGUE, A. M., Assistant Professor of Chemistry.  
 WILLIAM W. DAVIS, A. M., Assistant Professor of American History and Political Science.  
 GERHARD A. GESELL, A. B., Assistant Professor of Public Speaking.  
 VICTOR E. HELLEBERG, A. B., Assistant Professor of Sociology.  
 HOWARD A. HUBBARD, ¶ Assistant Professor of Economics.  
 WILLIAM O. HAMILTON, A. B., Assistant Professor of Physical Education.  
 RALPH A. SHERWIN, B. S., Assistant Professor of Physical Education.  
 LALIA V. WALLING, A. M., Instructor in Physiology.  
 FLORENCE HEDGER, A. B., Instructor in Chemistry.  
 NADINE NOWLIN, A. B., Instructor in Zoölogy.  
 MAY GARDNER, A. B., Instructor in French.  
 CHARLES B. ROOT, Instructor in Physical Education.  
 FRANK U. G. AGRELIUS,\* A. M., Instructor in Botany.  
 OLIVE M. GILBREATH, A. M., Instructor in Rhetoric.  
 HENRY J. BRODERSON, A. B., Instructor in Chemistry.  
 ROBERT S. FORSYTHE, A. M., Instructor in Rhetoric.  
 CALVERT J. WINTER, PH. B., Instructor in Romance Languages  
 ALICE WINSTON, A. B., Instructor in Rhetoric.

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\* Resigned.

§ Appointed for first semester, 1910-'11.

¶ Appointed for second semester, 1911.

- MARIA L. BENSON, A. B., Instructor in Design and Ceramics.  
GEORGE W. SPINDLER, A. M., Instructor in German.  
ANA JULE ENKE, PH. B., Instructor in Spanish.  
ROSE R. MORGAN, A. M., Instructor in English.  
WARD H. COOK, A. M., Instructor in Zoölogy.  
BENJAMIN F. STELTER, A. M., Instructor in English.  
THEODORE T. SMITH, A. M., Instructor in Physics.  
AMIDA STANTON, A. B., Instructor in Romance Languages.  
EUGENE D. CAMPBELL, A. B., Instructor in Philosophy.  
CLARENCE A. NASH, A. M., Instructor in Chemistry.  
CLARA P. NEWPORT, PH. D., Instructor in German.  
CLIFFORD C. YOUNG, A. B., Instructor in Chemistry.  
ALLEN A. SEIPT, PH. D., Instructor in German.  
GEORGE W. HESS, A. B., Instructor in Mathematics.  
FLOYD C. DOCKERAY, A. M., Instructor in Psychology.  
GRACE MIRIAM CHARLES, PH. D., Instructor in Botany.  
LARRY M. PEACE, A. M., Preparator and Demonstrator in the  
Botanical Laboratory.  
HANDEL T. MARTIN, Assistant Curator of Paleontology.  
CHARLES D. BUNKER, Assistant Curator of Mammals, Birds and  
Fishes.  
FRANCIS X. WILLIAMS, A. B., Assistant Curator in Entomology.  
RAY D. LINDSEY, A. M., Assistant Instructor in Zoölogy.  
JOSEPH W. MURRAY, Assistant Instructor in Journalism.  
WILBER A. HOBBS, A. B., Assistant Instructor in Chemistry.  
IRVIN W. HUMPHREY, A. B., Assistant Instructor in Chemistry.  
ELLWOOD D. ROOD, A. B., Assistant in Food Analysis.  
FREDERICK W. BRUCKMILLER, Assistant in Water Analysis.  
NOBLE P. SHERWOOD, B. S., Assistant Instructor in Botany and  
Bacteriology.

## COURSES OFFERED IN THE COLLEGE.

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The College offers the courses in literature, science and the arts that provide the so-called liberal education, and leaves in the main the applied sciences and arts to other departments. The regulations governing the work required for entrance and that done during the Freshman and Sophomore years are designed to result in the student's having had a minimum number of courses in the fundamental branches of knowledge, on which he will base his broader and more specialized work in the Junior and Senior years.

### DEGREE CONFERRED.

All graduates of the College receive the degree of bachelor of arts.

### ADMISSION.

There are two methods of admission to the College: First, by examination; second, by certificate.

#### 1. BY EXAMINATION.

**TIMES AND PLACE.** Candidates for admission to first-year work in the College, not presenting the required certificates, will be examined at the University, Lawrence, either on Thursday, Friday and Saturday, May 25, 26 and 27, 1911, or on Wednesday, Thursday and Friday, September 13, 14 and 15, 1911. The following is the schedule of examinations:

*Thursday, May 25, or Wednesday, September 13.*

- 9-10. English.
- 10-11. Algebra.
- 11-12. French.
- 1-2. Physical Geography.
- 2-3. German.
- 3-4. Economics.

*Friday, May 26, or Thursday, September 14.*

- 9-10. Geometry.
- 10-11. Latin.
- 11-12. History.
- 2-3. Greek.
- 3-4. Physics.



*Saturday, May 27, or Friday, September 15.*

- 8-9. Botany.
- 9-10. Chemistry.
- 1-2. Zoölogy.
- 2-4. Free-hand Drawing.

Candidates for admission may divide the examination between two years, or between the two examinations of the same year, under the following conditions: The applicant may present himself at the preliminary for examination in any or all of the prescribed subjects, and, if he is successful in five or more subjects, he need not be again examined in them.

Examinations for advanced standing on work done in preparatory schools, not required for admission, will be held at the same time as entrance examinations.

## 2. BY CERTIFICATE.

Nearly all students enter the College by certificate from high schools, academies, military schools, or preparatory schools of other colleges and universities, accredited by the University.

The candidate for admission by certificate must present either a certificate of graduation from an accredited preparatory school, or a letter from the principal of such school recommending him for admission without graduation. The certificate should be signed by the principal or other executive officer of the school. Blank certificates will be sent by the Registrar of the University about May 1 of each year to the principal of each accredited school. The certificates of all students expecting to enter the College should be filled out, signed and returned by the principal or superintendent of schools to the Registrar before July 1.

Blank certificates will be sent on application to the Registrar.

### ENTRANCE UNIT.

Preparatory work is estimated in terms of the "entrance unit." A subject like algebra, for example, may be pursued one year, *i. e.*, thirty-five weeks, five recitations a week, with at least forty minutes for each recitation, and the work thus done secures the student one "entrance unit." In computing entrance units it must be noted that the laboratory period should be twice the length of a recitation period.

### NUMBER OF UNITS REQUIRED.

Fifteen units are necessary for unconditional admission to the College. A temporary deficiency, however, of not more than two units will be permitted, but the deficiency in any "group" given below must not exceed one unit.

## MAKING UP DEFICIENCIES.

A student thus conditioned must make good all of his deficiencies during his first year in the University. Work done in making good such deficiencies does not, of course, count as College work.

When deficiencies are made up at the University, a "College unit," *i. e.*, five hours a week for a half-year (one semester), is considered equivalent to an "entrance" (or high-school) "unit," as above defined.

## COLLEGE CREDIT.

College credit for work done in preparatory schools will be given upon examination only. (See page 114 for times and place of examination.)

## SUBJECTS FOR ADMISSION.

A total of fifteen units must be offered for entrance. The subjects in which this entrance work may be offered are arranged in seven groups, as follows, the number of units required being also indicated:

GROUP I, English.	English, four units.	Three units are required.
GROUP II, Mathematics.	Elementary algebra, one and one-half units. Plane geometry, one unit. Solid geometry, one-half unit. Plane trigonometry, one-half unit. Advanced algebra, one-half unit.	The elementary algebra and plane geometry are required.
GROUP III, Foreign Languages.	Latin, four units. Greek, three units. German, three units. French, three units.	Of these, three units are required, which must be, first, in Latin, or, second, in German.
GROUP IV, Physical Sciences.	Physical geography, one unit, or one-half unit. Physics, one unit. Chemistry, one unit.	One unit is required.
GROUP V, Biological Sciences.	Botany, one unit. Zoölogy, one unit. Physiology, one unit.	One unit is required.

GROUP VI, History.	Greek and Roman, one unit. Mediæval and modern, one unit. English, one unit. American, one unit. Economics, one unit, or one-half unit. Civics, one-half unit.	One unit is required.
GROUP VII, Vocational Subjects.	Woodwork, one unit. Drawing, one unit. Domestic art, one half unit. Domestic science, one-half unit. Agriculture, one-half unit. Bookkeeping, one-half unit. Commercial law, one-half unit. Commercial geography, one-half unit. Psychology, one-half unit. Methods and management, one-half unit.	One unit may be offered.

Of the fifteen units required for entrance, eleven and one-half are prescribed by group; the remaining three and one-half units may be chosen without restriction.

### ENTRANCE SUBJECTS IN DETAIL.

#### ENGLISH.

Four units (three required).

The requirement in English is that recommended by the National Conference on Uniform Entrance Requirements in English, and accepted by all colleges in the United States. Each of the three required units calls for one year of daily recitations in English subjects, in the proportion of three in English literature to two in English composition. For a fourth unit, accredited high schools may offer a fourth year of English, if approved by the High-school Visitor; and the character of this fourth year's work may be determined with reference to the conditions of individual schools. For full details and explanations, see the High-school Manual, No. VII, published by the University and sent to any address upon application.

## MATHEMATICS.

Four units (two and one-half required).

It is assumed that all candidates for admission to the College are proficient in the practical application of arithmetic. The College recommends that the arithmetic in the upper grades be made more algebraic in character or that some elementary algebra be taught in the grades in place of some of the more abstract topics in arithmetic. It also recommends that concrete geometry, under its own name or under the name of geometrical drawing, be taught in the grades.

The student must offer a minimum of two and one-half units, and may offer a maximum of four units, in mathematics, in five subjects, as follows:

**ELEMENTARY ALGEBRA.** One and one-half units. The required one and one-half units of algebra must consist of the four fundamental operations of algebra; factoring; determination of highest common factor and lowest common multiple by factoring; fractions; simple equations, both numerical and literal; simultaneous equations, both numerical and literal, containing two and three unknown quantities; radicals, including the extraction of the square root of polynomials and of numbers; exponents, including fractional and negative; quadratic equations, in one and two unknown quantities, both numerical and literal, with applications.

Throughout the course the pupil should be required to solve numerous problems which involve putting questions into equations. Some of these problems should be chosen from mensuration, from physics, and from commercial life. The use of graphical methods and illustrations, particularly in connection with the solution of equations, is also required. The same credit will be given work, whether done partly in the grades and partly in the high school, or wholly in the high school.

**PLANE GEOMETRY.** One unit. The usual theorems and constructions of good textbooks, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons, and the measurement of the circle. The solution of numerous original exercises, including loci problems, and the application to the mensuration of lines and plane surfaces is strongly insisted on. The first five books of Wentworth's Geometry (or an equivalent) will be accepted. This unit is required.

**SOLID GEOMETRY.** One-half unit. The usual theorems and constructions of good textbooks, including the relations of planes and lines in space; the properties and measurements of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle; numerous original exercises, including loci problems and applications to the mensuration of surfaces and solids.



**PLANE TRIGONOMETRY.** One-half unit. Definitions and relations of the six trigonometric functions as ratios; circular measurement of angles; proofs of principal formulas, in particular for the sine, cosine and tangent, of the sum and difference of two angles, of the double angle and the half angle, the product expressions for the sum or the difference of two sines or of two cosines, etc.; the transformation of trigonometric expressions by means of these formulas; solution of trigonometric equations of a simple character; theory and use of logarithms (without the introduction of work involving infinite series); solution of right and oblique triangles and practical applications. Problems should be solved by the use of tables of natural functions, and also by use of tables of logarithms and logarithmic functions.

**ADVANCED ALGEBRA.** One-half unit. Permutations and combinations, limited to simple cases; complex numbers, with graphic representation of sums and differences; determinants, chiefly of the second, third and fourth orders, including the use of minors and the solution of linear equations; numerical equations of higher degree, and so much of the theory of equations, with graphic methods, as is necessary for their treatment, including Descartes' rules of signs and Hornor's method, but not Sturm's functions or multiple roots.

Most candidates prefer to offer three units of mathematics for entrance; these three units should consist of the two and one-half units of required algebra and plane geometry and one-half unit of solid geometry or plane trigonometry.

As to the order in which the mathematical topics should be taught in the high schools, the following is recommended:

*First Year.* Elementary algebra, including a brief treatment of quadratic equations.

*Second Year.* Plane geometry completed.

*Third Year.* Solid geometry, first half-year; required algebra completed, second half-year.

*Fourth Year.* Plane trigonometry, first half-year; advanced algebra, second half-year.

It is important that students entering the College should come with the algebra fresh in mind. Schools that do not offer the fourth year in mathematics should teach the last third of the required algebra as late as possible in the course.

## LATIN.

One, two, three, or four units.

*First Unit.* Beginner's Book. In all written exercises the long vowels should be marked, and in all oral exercises pains should be taken to make the pronunciation conform to the quantities. Students should be taught from the beginning to read the Latin aloud with intelligent expression.

The important things in this year are: First, a perfect knowledge of the paradigms; second, some practice in reading easy connected passages in preparation for the second year's work.

*Second Unit.* The first four books of Cæsar's Gallic War, or selections from Cæsar equivalent in amount to those books; and the equivalent of one period a week in prose composition. Selections from other prose writers, such as Nepos, may be taken as a substitute for one book of Cæsar, or an equivalent amount may be read in any of the "second-year books," provided at least two books of Cæsar are included.

The important things in this year are: First, a systematic drill on the more common case and mode uses; second, an intelligent comprehension of the matter read. The students should be able to give a good account of any of Cæsar's campaigns.

*Third Unit.* Six orations of Cicero, and the equivalent of one period a week in prose composition. The orations should include the four against Catiline and the Manilian Law. Sallust's Catiline may be substituted for the Manilian Law and a sixth oration.

The important things in this year are: First, a systematic drill in all Ciceronian case and mode uses; second, an intelligent comprehension of the contents of the orations.

*Fourth Unit.* The first six books of Vergil's *Æneid*, and the equivalent of one period a week in prose composition. An equivalent amount of Ovid may be substituted for part of the Vergil.

The important things in this year are: First, an intelligent appreciation of Vergil's story and art; second, a training in reading the meter which will allow the student to read the Latin metrically with ease and expression; third, a study of the mythology. If the work of the first three years has been done well, syntactical drill should be confined almost wholly to the period devoted to prose composition.

*Note.*—When only three units are presented, it is preferred that they be the first, second, and third; but the first, second, and fourth will be accepted. No combination of Cicero and Vergil will be accepted as a unit.

*Latin Prose Composition.* It will be noticed that prose composition is required throughout the last three years. One period a week may be devoted to it, or a smaller amount may be given each day. Such books as Bennett's and Jones's are recommended as giving the more systematic drill, but they should be supplemented by the occasional dictation of connected passages based on the text read. Such books as Daniell's and Moulton's will be accepted, but they need to be supplemented by a systematic study of the grammar. D'Ooge's Latin Composition is also

good. If the book chosen does not give sufficient material for work in connection with Vergil, Nutting's Supplementary Latin Composition is recommended.

### GREEK.

One, two, or three units.

*First Unit.* Elementary Greek. White's First Greek Book or Gleason's Greek Primer, or an equivalent. Thorough mastery of declensions and conjugations, and the main ideas of syntax. Xenophon's Anabasis begun, and twenty to thirty pages read. Goodwin's, Babbitt's or Goodell's Greek Grammar.

*Second Unit.* Xenophon's Anabasis continued into or through the fourth book, or an equivalent amount of other Attic prose. Review of inflections. Systematic study of syntax in the grammar. Practice in writing Greek based on the text read. Constant training in sight reading.

*Third Unit.* Homer's Iliad or Odyssey, five or six books, exclusive of the Catalogue of Ships. Constant practice in reading at sight. Special attention to Homeric forms, vocabulary, and scansion. Attic prose composition once a week. Benner's Selections from Homer's Iliad. Perrin and Seymour's School Odyssey.

### GERMAN.

One, two, or three units.

*First Unit.* The elements of grammar (the first eighteen lessons of Carruth's Otis's Essentials of German Grammar), including: (1) Careful drill in pronunciation; (2) familiarity with German script and text; (3) the memorizing of paradigms; (4) the writing, correction, memorizing and reciting after correction of all the English-German exercises in one of these grammars; (5) colloquial exercises daily to illustrate and fix the principles and the vocabulary introduced; (6) the memorizing of 100 lines of good German (popular songs or narrative prose). One half-year.

The reading and translation of about seventy-five pages of simple German (as in Carruth, Hewett, Joynes-Meissner Readers). This reading should involve the reading aloud of the German, the rendering into good idiomatic English, and question and answer in German upon what is read. Word-for-word translation should not be permitted, save when necessary to show the precise force of an idiom. One half-year.

The above work will require, if properly done, five forty-five minute periods weekly for thirty-five weeks. A wise plan is to begin with the grammar and carry this continuously for five or six weeks. Then introduce the reader; at first, one lesson a week, and then, after ten or twelve weeks, increasing the num-

ber of lessons from the reader until the grammar lessons have been completely and thoroughly reviewed.

*Second Unit.* Additional study of grammar, directed to the details of case government, use of the modal auxiliaries, of the subjunctive, and of word order. (The equivalent of lessons XIX to XXIV in Carruth's Otis's Essentials.) Practice in writing German from dictation, at least eighteen exercises (one a week for a half-year, to occupy fifteen to twenty minutes each).

Reading and translation of 100 pages of connected prose and of Schiller's Wilhelm Tell, complete. The 100 pages of prose may be made up from the remainder of Carruth's or Hewett's Reader, together with Zshokke's Der zerbrochene Krug, Heyse's Die Blinden or Anfang und Ende, Storm's Immensee, Andersen's Maerchen, Grimm's Maerchen.

*Third Unit.* Review of grammar, and the completion of Carruth's Otis, lessons XXV to XXX, with drill on the less usual strong verbs and on the idioms of tense and order. Composition work, consisting chiefly of paraphrases of the German used for translation.

Reading of 400 pages of standard German, with careful translation and critical understanding. (Some portion of what is translated should always be read aloud in German.) Suitable works are: Freytag's Die Journalisten and Lessing's Minna von Barnhelm; Fouque's Undine; Hauff's Das kalte Herz; Schiller's Der dreissigjaehrige Krieg; Freytag's Doktor Luther; Riehl's Burg Neideek; Goethe's Hermann und Dorothea.

## FRENCH.

One, two, or three units.

*First Unit.* Rudiments of grammar; conjugation of the regular and the more usual irregular verbs; moods and tenses; use and position of pronouns; partitive constructions. Careful drill in pronunciation. Reading of 100 pages of easy prose. Practice in writing and speaking very simple sentences.

*Second Unit.* All the essentials of accidence and syntax. Composition. Frequent dictation. Oral exercises. Reading of 300 to 350 pages of modern French.

*Third Unit.* Thorough review of grammar. Written exercises based upon grammatical points, and connected writing. Dictation. Practice in hearing and speaking French. Reading of 600 pages of fairly difficult modern French.



## PHYSICAL GEOGRAPHY.

One unit, or one-half unit.

The course in physical geography should include a study of the following subjects:

1. The earth as a globe; shape of the earth, how proved; size, how measured; motions, how determined; map making; different modes of projection.

2. The ocean; forms and divisions; depth, density, temperature; ocean movements, waves and currents; character of ocean floor; life in ocean; tides, character and causes; shore lines.

3. The atmosphere; chemical composition, and how determined; pressure of, and how determined; circulation of, character and causes; storms, classification of, and cause.

4. Land, amount and distribution of; topographic charts; plains, kinds of, and development of; plateaus, kinds of, and development of; volcanoes, distribution and character of; rivers, life history of; glaciers, kinds and characteristics of.

## PHYSICS.

One unit.

The candidate's preparation in physics should include:

1. Recitations on at least one standard text, such as Carhart's High School Physics or Hoadley's A Brief Course in Physics.

2. Experimental work, consisting of lecture-table demonstrations and individual laboratory work. The latter should comprise at least thirty exercises selected from such lists as are given in the University High-school Manual or in a good laboratory manual, such as that by Chester-Dean-Timmermann or that by Coleman.

## CHEMISTRY.

One unit.

Preparatory work in this subject should cover practically the work done in course I in the University, and should give the student a good knowledge of (1) modern chemistry theories; (2) the most important facts of chemical science; (3) the practical applications of chemistry to every-day life and to the useful arts. It is important that elementary physics be thoroughly understood before taking up the study of chemistry. About two-fifths of the time devoted to chemistry should be spent in actual laboratory work by the students individually, as adequate training and preparation are not given merely by the instructor's performing experiments in the presence of the class. Any good textbook, such as Remsen's Introduction to the Study of Chemistry (sixth edition), Newth's Inorganic Chemistry, or Introduction to Gen-

eral Chemistry, by H. C. Jones, may be used. Some of the abridged textbooks are too elementary to fulfill the requirements of the University.

### BOTANY.

One unit.

A unit's course in botany should essentially follow the outline recommended in the Proceedings of the Seventh Annual Meeting of the North Central Association of Colleges and Secondary Schools. Detailed directions for such a course are given in Ganong's *The Teaching Botanist*, Stevens's *Introduction to Botany*, and Bergen's *Foundations of Botany*. Not less than two-thirds of the time should be devoted to laboratory work, and the remainder to recitations and discussions. Field excursions should be made, so that the students may know in their natural surroundings the plants already studied in the laboratory. Careful drawings and notes should be required in connection with the laboratory work.

### ZOOLOGY.

One unit.

Acceptable work in zoölogy must be of such a character that at least two-thirds of the time is spent in individual study of type specimens. The value of the study rests in the training given in independent observation and correlation of facts, and in the accurate recording of these facts by drawings and notes. Comparative work is of the greatest importance. The arthropods are the best group in Kansas upon which to work, and it is suggested that they be used to exemplify the general principles of structural relations and classification. For a laboratory guide, Marshall and Hurst's *Practical Zoölogy* is recommended, and as a textbook, Parker and Haswell's *Manual of Zoölogy*. Where much of the time is devoted to the study of insects, Hunter's *Elementary Studies in Insect Life* may be used as a guide, and Comstock's *Manual of Entomology* and Weed's *Life Histories of American Insects* as reference books.

### PHYSIOLOGY.

One unit.

In presenting this subject, about one-half of the time should be employed in laboratory work and the remainder in recitations. To insure the best results and to cultivate the power of observation and expression, neat and correct drawings, properly labeled and accompanied by intelligent notes, should be made of each subject, demonstration or experiment studied.

Martin's *Human Body* (briefer course) or Colton's *Experimental and Descriptive Physiology* are recommended as textbooks.

## GREEK AND ROMAN HISTORY.

One unit.

If four years of history are offered in the high school, it is recommended that Greek and Roman history, with some preliminary study of the earlier nations, be given in the first year; otherwise, as early as possible. In selecting a text the teacher will do well to examine Morey, West's Ancient World, Wulfson, Myers, and Botsford.

## MEDIÆVAL AND MODERN EUROPEAN HISTORY.

One unit.

This should, if possible, succeed the course in ancient history, and precede that in English history. If English history is not offered separately, some special stress may be laid upon it in this course. Many excellent textbooks have recently appeared on this subject. Among these are Munroe and Whitcomb, Bourne, West, Myers, and Robinson.

## ENGLISH HISTORY.

One unit.

In a four-year course English history should be offered in the third year; otherwise, it should, at any rate, precede American history. There are numerous textbooks on the subject. Besides that recommended for state use, Channing and Higginson, there are Corman and Kendall, Walker, Cheyney, Wrong, Larned, Montgomery and Andrews.

*Note.*—In the three courses above attention should be given to geography, some outside reading, and the taking of notes. The use of outline maps to be filled in by the students is especially recommended. In all good textbooks will be found lists of reference books desirable for a school library. The Report of the Committee of Seven should also be consulted. But the department does not urge that the division between ancient and mediæval history be fixed at 800 A. D.

## AMERICAN HISTORY.

One unit.

The experience of teachers has proved that it is better to devote an entire year to American history than to attempt the combination of civics and history recommended by the Committee of Seven. In order to receive entrance credit, the course must not be given before the third year in the high school, and unless library facilities are exceptional, should be based upon some such approved text as Channing's Student's History, McLaughlin's American Nation, or Hart's Essentials. The use of Hodder's Outline Maps, published by Ginn & Co., is recommended.

## ECONOMICS.

One unit, or one-half unit.

The general principles of economic science, with some of its applications. The instructor, as far as possible, should approach the subject from the concrete rather than from the abstract, and should verify every principle by practical examples. Blackmar's Economics for High Schools (or its equivalent) should be used as a text and guide. Special attention should be given to books II and III. In case one-half unit of entrance credit is desired, books I and II should be emphasized, and book III, on Public Economics, should be omitted.

A limited amount of collateral reading should be required, and easy investigations of local economic conditions are advised.

## CIVICS.

One-half unit.

In response to urgent requests from many teachers, the College is prepared to give entrance credit of a half unit for civics. The work should include a knowledge of the form and functions of the national government and of state and local government in Kansas. The study should be based on some approved text like Boynton's School Civics.

## COMMERCIAL GEOGRAPHY.

One-half unit.

Time, eighteen weeks. The work should cover the following topics: (1) The effect of the surface, soil, climate, etc., on commerce; (2) the influence of race, religion, education, commercial policies, etc., on commerce; (3) the effect of economic forces on production and commerce; (4) means of transportation and communication. These topics should be worked out in relation to the United States, first in sections then as a whole. This ground is covered by any good text, which should be supplemented by map work and assigned readings.

## VOCATIONAL SUBJECTS.

The subjects under this heading for which credit will be given are enumerated in group VII. One credit each will be given for wood work and drawing, and one-half credit for each of the other subjects in the group.

Credits for above units and half units is conditioned on these units being defined by the Faculty of the College of Liberal Arts and Sciences, and entrance credit for the same will be given to the graduates of only such schools as are reported by the High-school Visitor to be fully complying with these standards.

Definitions and outlines will be published in the High-school Manual, and will be furnished upon request.



## ADMISSION TO ADVANCED STANDING.

The regulations governing admission to advanced standing in the College are administered by a committee of the Faculty, which examines into the merits of each case presented to it, and either credits the applicant with a certain rank or recommends him to the heads of departments for advanced credit or examination.

*Application for such advanced standing must be made at the time of matriculation.*

*Undergraduates from other colleges must present certificates of honorable dismissal, or other satisfactory evidence of good character.*

Some requirements of the College are indicated as follows:

I. BY EXAMINATION. A candidate may be admitted to the Sophomore, Junior or Senior class, if he appears on examination to be prepared in the following studies: (1) In the studies required for admission to the Freshman class. (2) In all such studies as he would have pursued if he had entered at the beginning of the course.

*All applications for examination for advanced standing must be made during the opening week of the first term. College credit will be given for work done in preparatory schools upon examination only. The times and place of such examinations are the same as listed on page 114.*

II. WITHOUT COMPLETE EXAMINATION. Graduates or students from the higher classes of other colleges may be admitted to advanced standing upon presentation of a certificate stating in detail the work done, under such conditions as the Faculty may determine to be just in each case, upon consideration of the applicant's previous course of study and of the evidence he presents of his proficiency in that course.

It is required of all candidates for the bachelor's degree who have entered the College on advanced standing from other colleges that they do not less than thirty hours of Junior or Senior work in residence at the University.

Students leaving the College before obtaining the bachelor's degree, who have spent three full years in residence at the College, and lack but fifteen hours of graduation, may receive not to exceed fifteen hours' credit from an institution of equal standing, provided they receive the bachelor's degree or a higher degree from such institution.

## UNCLASSED STUDENTS.

Opportunity is given in the College for the admission of persons of mature years who desire to pursue some special line of work, without following any prescribed course or becoming candidates for a degree.

The admission of such unclassified students is directly under the control of a committee of the Faculty, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for classification as unclassified students must present satisfactory evidence of proper preparation for the studies desired, and must also meet such other requirements as may be fixed by the Faculty.

## REGISTRATION AND ENROLLMENT.

All candidates for admission having certificates from accredited schools and all students of the College intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 13 to 16, inclusive, 1911. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay.

Registrations may be made through the mails by sending to the Registrar of the University, after August 1, certified transcripts of preparatory work and a check payable to Edward E. Brown, Secretary, covering fees.

The Dean of the College is charged with the execution of all University and Faculty rules relating to the enrollment of students in classes and their choice of studies.

**COMPLETION OF REQUIREMENTS.** A student may not be enrolled in any subject in advance of any other which he has yet to take, and which it is possible for him to carry at the time.

## EXAMINATIONS.

Final examinations are held for all students during the last week of each semester.

Special examinations will be given only during examination weeks and during the opening week of the fall term.

All requests for special examinations must be approved by the Dean.

**FAILURES.** All failures in examinations must be made good by reënrollment in the course at the earliest possible date.

Absence from examination or failure in more than one-third of his work, in any one term, severs a student's connection with the University.

CONDITIONS. A student who has failed to pass in any course may be conditioned upon the same by the Dean, if in the opinion of the instructor the failure can be made good by the next examination period, without detriment to the regular work of the student. A condition which is not made up at the next examination period is placed again in the list of failures.

*Inadequate Preparation.* When students show by their current work insufficient entrance preparation in any study they may be required to make good such deficiency in any manner prescribed by their instructors.

## SCHOLARSHIPS.

The following scholarships are offered to students in the College:

1. The Lucinda Smith Buchan Memorial Scholarship. Established by the alumnae members of the Pi Beta Phi sorority. A loan of \$200 for two years without interest. Open to young women of the Junior and Senior classes of the College. Miss Annette Zook, Fort Scott, Kan., held the scholarship for 1910-'11.

2. The Marcella Howland Memorial Scholarship. Sixty dollars a year. Open to young women of the Junior and Senior classes of the College. Held in 1910-'11 by Miss Lily G. Baker, Cherryvale, Kan.

3. The Frances Schlegel Carruth Scholarship in German. A Freshman scholarship of \$100, in memory of Frances Schlegel, for eight years professor of modern languages in the University of Kansas. Given to the graduate of the Lawrence high school who passes the best examination in two-years entrance German. Held in 1910-'11 by Miss Ada Cressman, of Lawrence, Kan.

4. A research table in the Marine Biological Laboratory, at Woods Hole, Mass., supported by Mrs. Sara T. D. Robinson. Open to women of the University who have specialized in the sciences and given evidence that they are fitted to make the best use of it. Held in 1910-'11 by Miss Hattie Fenner, of Humboldt, Kan. Application for the use of this table should be sent to Mrs. Sara T. D. Robinson, Oakridge, Lawrence, Kan.

5. The Women Student Government Scholarships. Three of \$100 each. Held in 1910-'11 by Miss Fern A. Cook, Wellington, Kan.; Miss Virgil M. Gordon, Fort Scott, Kan., and Miss Frances Inez Smith, Lawrence, Kan.

6. The W. S. Griesa Research Scholarship in Entomology. Three hundred dollars a year. Held in 1910-'11 by Henry W. Lohrenz, Hillsboro, Kan.

7. The Charles S. Griffin Memorial Scholarship for young men of the Sophomore class of the College. Held in 1910-'11 by

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### MEMORIAL FUND.

May Sexton Agnew Memorial Fund. A fund of \$500 has been given the library of the University by the Kappa chapter of Kappa Alpha Theta fraternity. The income of this fund is to be devoted to the purchase of books in English literature.

### FEES AND EXPENSES.

For information regarding fees and expenses in The College, see page 59 of this catalogue.



## PROGRAM OF STUDIES IN THE COLLEGE.

Leading to the Degree of Bachelor of Arts.

### WORK REQUIRED FOR GRADUATION.

In order to receive the degree of bachelor of arts from the College of Liberal Arts and Sciences, a student must satisfy the following requirements: He must complete 120 hours of class work; in the first term of his Freshman year he must spend two hours a week in the gymnasium, in the second term, three hours a week, and throughout his Sophomore year, two hours a week; and in the first term of his Freshman year he must attend a weekly lecture in hygiene.

### REGULATIONS GOVERNING THE ELECTION OF COURSES.

The courses from which the candidate for the degree must make his selection are listed on page 137 *et seq.* of this catalogue. They are divided into nine groups, according to the departments by which they are given. These groups are as follows:

#### GROUPS OF DEPARTMENTS OFFERING COURSES IN THE COLLEGE.

<i>Group.</i>	<i>Department.</i>
I. English.	English language and literature. Journalism. Public speaking.
II. Ancient Language.	Greek language and literature. Latin language and literature.
III. Modern Language.	Germanic languages and literatures. Romance languages and literatures.
IV. Mathematics.	Mathematics.
V. Physical Science.	Chemistry. Physics and astronomy. Geology and mineralogy.
VI. Biological Science.	Botany. Zoölogy. Entomology. Physiology. Anatomy.
VII. History.	History and political science. Sociology and economics.

<i>Group.</i>	<i>Department.</i>
VIII. Philosophy.	Philosophy. Design. Music.
IX. Miscellaneous.	Home economics. Physical education.
X. Professional.	Law (fifteen hours, open to College Seniors). Medicine (second year, open to College Seniors). Engineering (fifteen hours). Education (fifteen hours, open to College Juniors and Seniors).

In the choice of courses from these groups the student must conform to the following regulations:

### FRESHMAN-SOPHOMORE REQUIREMENTS.

Before the beginning of the Junior year the student must have completed sixty hours, chosen from the list of courses open to Freshmen and Sophomores in accordance with the following regulations:

1. At least five hours must be taken from each of six groups.
2. Not more than twenty hours may be taken in one department.
3. Rhetoric, five hours, must be taken by all Freshmen not offering it as a fourth year of entrance English. Credits for rhetoric are given provisionally. (See announcement of the course.)

### MAJOR COURSE.

Before graduation the student must complete a major course of not less than thirty hours nor more than sixty hours in one group. Not less than twenty hours nor more than forty hours of his major course may be taken in one department. Notice of the major group chosen must be filed with the Dean at the beginning of the Junior year.

### FREE ELECTIVES.

The work required for graduation not included in the major course is to be chosen subject to the restriction that not more than thirty hours may be elected in one group.

### NUMBER OF HOURS PERMITTED IN ONE GROUP AT ONE TIME.

Not more than ten hours may be carried in one group at one time.

## DUPLICATION OF SUBJECTS.

A course may not be chosen which substantially duplicates work for which credit has already been granted, either in the College or the preparatory school.

## RESPONSIBILITY.

The individual student will be held responsible for the election of his courses in conformity with the preceding regulations.

## AMOUNT OF WORK TO BE CARRIED AT ONE TIME.

Students of the College must be enrolled in not less than fourteen nor more than eighteen hours of work, but all applications for enrollment are subject to the approval of the Dean.

When the past record or current work of a student indicates that he is unable to carry advantageously the amount of work permitted by the above regulation, he may be limited in his enrollment to such extent as may be considered advisable in his case.

The Faculty urges students to confine themselves to the average number of fifteen hours of class work, and thus devote four full years to the completion of their undergraduate work. Experience has shown that the crowding of the undergraduate course results in serious loss in the quality of the work accomplished.

## COLLEGE CREDIT FOR PROFESSIONAL COURSES.

Juniors and Seniors in the College are permitted to enroll in certain courses offered in the professional schools and count the credit received for such work towards the bachelor of arts degree, but no student is permitted to offer credit from more than one professional school. The amount of credit that may be thus used is subject to the limitations indicated below. Students desiring to avail themselves of this opportunity must register in the professional school as well as the College, but in enrollment the regulations of the College Faculty governing quantity and character of courses elected must be observed.

## SCHOOL OF MEDICINE.

Juniors and Seniors in the College may offer twenty-five hours from the curriculum of the School of Medicine not included in the courses which are also offered in the College (p. 178).

## SCHOOL OF LAW.

Seniors in the College may offer fifteen hours from the first year of the curriculum of the School of Law (p. 173).

## SCHOOL OF EDUCATION.

Juniors and Seniors in the College may be enrolled in not to exceed fifteen hours of work in the School of Education (p. 144).

## SCHOOL OF ENGINEERING.

A maximum of fifteen hours may be elected by the College student from courses offered in the School of Engineering (p. 144).

## COURSES OPEN TO FRESHMEN AND SOPHOMORES.

<b>Group I.</b> <b>English.</b>	ENGLISH LANGUAGE AND LITERATURE.	FIRST SEMESTER: Nos. 1**, 10, 12a*, 12b*, 14*. SECOND SEMESTER: Nos. 2**, 11, 13a*, 13b*, 14*.
	JOURNALISM.	FIRST SEMESTER: No. 1*. SECOND SEMESTER: No. 2*.
	PUBLIC SPEAKING.	FIRST SEMESTER: No. 1*. SECOND SEMESTER: No. 2*.
<b>Group II.</b> <b>Ancient Language and Literature.</b>	GREEK LANGUAGE AND LITERATURE.	FIRST SEMESTER: Nos. 1, 3, 4, 7, 8, 13, 14. SECOND SEMESTER: Nos. 2, 5, 6, 9, 10, 11, 12, 15.
	LATIN LANGUAGE AND LITERATURE.	FIRST SEMESTER: Nos. 1, 3, 4, 5, 6, 8, 9. SECOND SEMESTER: Nos. 2, 3, 4, 5, 6, 7, 10, 11, 12.
<b>Group III.</b> <b>Modern Language.</b>	GERMANIC LANGUAGES AND LITERATURES.	FIRST SEMESTER: Nos. 1, 2, 3, 4, 5a, 6, 8, 11, 12. SECOND SEMESTER: Nos. 1, 2, 3, 4, 5a, 5b, 7, 9, 10, 13.
	ROMANCE LANGUAGES AND LITERATURES.	FIRST SEMESTER: French 1, 2, 3, 4, 5, 8, 9, 10. Spanish 1, 2, 3, 4, 5. Italian 1, 3. SECOND SEMESTER: French 1, 2, 3, 4, 5, 6, 7, 11. Spanish 1, 2, 6. Italian 2, 4.
<b>Group IV.</b> <b>Mathematics.</b>	MATHEMATICS.	FIRST SEMESTER: Nos. 2, 3, 4, 5, 6, 7, 10*, 11*. SECOND SEMESTER: Nos. 1, 2, 3, 4, 5, 6, 7, 8*, 9*.



## COURSES OPEN TO FRESHMEN AND SOPHOMORES.

<b>Group V.</b> <b>Physical Science.</b>	CHEMISTRY.	FIRST SEMESTER: Nos. 1, 2. SECOND SEMESTER: Nos. 1, 3*.
	PHYSICS.	FIRST SEMESTER: Nos. 6a, 6b. SECOND SEMESTER: Nos. 1, 5a, 5b.
	GEOLOGY.	FIRST SEMESTER: No. 1*. SECOND SEMESTER: No. 1*.
<b>Group VI.</b> <b>Biological Science.</b>	BOTANY.	FIRST SEMESTER: No. 2. SECOND SEMESTER: Nos. 1, 3.
	ZOOLOGY.	FIRST SEMESTER: No. 1. SECOND SEMESTER: Nos. 2, 3.
	PHYSIOLOGY.	FIRST SEMESTER: No. 1. SECOND SEMESTER: Nos. 1, 2*.
<b>Group VII.</b> <b>History.</b>	HISTORY AND POLITICAL SCIENCE.	FIRST SEMESTER: Nos. 1, 3, 5a, 5b, 7*, 9a, 9b. SECOND SEMESTER: Nos. 2, 4, 6a, 6b, 8*, 10a, 10b.  FIRST SEMESTER: No. 1*. SECOND SEMESTER: No. 1*.
	SOCIOLOGY AND ECONOMICS.	FIRST SEMESTER: Nos. 1, 2*. SECOND SEMESTER: Nos. 1, 3*.
<b>Group VIII.</b> <b>Philosophy.</b>	PHILOSOPHY.	FIRST SEMESTER: Nos. 1*, 2*, 3*, 4*. SECOND SEMESTER: Nos. 1*, 2*, 3*, 4*.

\*\* Required of Freshmen.

\* Reserved for Sophomores.

## PRELIMINARY EXPLANATION.

## NUMBERS OF COURSES.

Courses with numbers from 1 to 49 are open to Freshmen and Sophomores: courses marked with an asterisk (\*) are reserved for Sophomores; courses marked with a double asterisk (\*\*) are required of Freshmen.

Courses with numbers from 50 to 99 are open to Juniors and Seniors on the condition stated in each case. Many of these courses are also open to graduate students; these are listed under the "Graduate School," with the same numbers increased by 100. See pages 77 *et seq.*

#### DAYS OF MEETING.

Courses giving five hours' credit meet daily from Monday to Friday, inclusive.

Three-hour courses meet on Monday, Wednesday and Friday unless otherwise specified.

Two-hour courses meet on Tuesday and Thursday unless otherwise specified.

## DESCRIPTION OF COURSES IN THE COLLEGE.

## ANATOMY.

Professor SUDLER.  
Assistant Professor SCAMMON.  
Doctor SMITH.

**EQUIPMENT.**—The department occupies the lower floor of Medical Hall, and uses the lecture room on the floor above. The dissecting rooms are well lighted and comfortable. A reference library, models and specimens are provided. Students are furnished with a skeleton and well-preserved dissecting material, for which a fee is charged covering the actual cost of the material consumed. They are expected to furnish dissecting instruments and two gowns for use in the dissecting room.

53.—**NEUROLOGY.** Five hours, first semester, 8 to 12:15. A study of the gross anatomy of the cord and brain by means of dissections, models and slides. Professor Sudler.

## ASTRONOMY. (See Physics.)

## BOTANY.

Professor STEVENS.  
Associate Professor BILLINGS.  
Assistant Professor STERLING.  
Mr. AGRELIUS, Instructor.  
Miss CHARLES, Instructor.  
Mr. SHERWOOD, Assistant Instructor.  
Mr. CLAWSON, Fellow.

**EQUIPMENT.**—The department is provided with laboratories and essential working appliances for general morphology, plant histology, systematic botany, herbarium, plant physiology, and bacteriology. The equipment embraces microtomes, paraffin baths, etc., for histological work, simple and compound microscopes for each student, individual sets of apparatus for physiological experiments, and apparatus for carrying on bacteriological research according to the best methods. In connection with the laboratory for plant physiology is a workroom supplied with tools and machinery for the construction of apparatus as needed. There is a departmental library, in which are at hand the books of reference needed by the students in connection with their laboratory work, and the leading botanical periodicals.

**ADVICE AS TO CHOICE OF COURSES.**—Courses 1 or 3, or their equivalent in other schools, are prerequisites to all other courses in botany. Course 1 affords an introduction to the general field of botany. Students who enter the University with less than a

high-school year in botany should consult with the department about the best first course in botany following their high-school preparation. Students who have completed a high-school year in botany may not take course 1 for credit, for they are supposed to have covered the ground of this course at the high school, and to be prepared to enter courses 2, 3 and 52, which are elementary in their several fields. The student should take course 3 following course 1 or its high-school equivalent, if he wishes to get an intimate acquaintance with the morphology and life histories of the different groups of plants, from the lowest to the highest; or course 2, if he wants to acquire histological technique and to understand the cellular structure of plants and how plants are equipped to perform their physiological functions, and to prepare himself for plant physiology in course 51, or course 52, if he desires, first of all, to broaden his knowledge of the morphology and systemy of the flowering plants. If, after course 1, the student wishes to elect two courses that would best enrich his general information about plants, courses 2 and 3 should be chosen. If a basis for a knowledge of sanitation is desired, course 3, 55 or 56 should be selected. Courses 1, 2, 3, 51 and 52 are fundamental to scientific plant culture. Students who are preparing to teach botany in high schools should take courses 1, 2, 3, 51, 52 and 55.

FOR UNDERGRADUATES ONLY.

1.—ELEMENTARY BOTANY. Five hours, second semester, 1:30 to 3:30. An introduction to the forms and parts of plants, and the way typical plants perform their functions and conform to their environment. This course or course 3, or the equivalent in other schools, is a prerequisite to all succeeding courses in botany. Laboratory work ten hours a week, reading, recitations, and lectures. Professor Stevens and Assistant Professor Sterling.

2.—PLANT HISTOLOGY. Five hours, first semester, 1:30 to 3:30. A study of plant tissues, with special reference to their development and functions; plant products, their origin and physiological and biological significance; histological technique. Laboratory work ten hours a week, recitations and lectures. Prerequisite, course 1. Professor Stevens and Miss Charles.

3.—GENERAL MORPHOLOGY OF PLANTS. Five hours, second semester, daily, 10:15 to 12:15. Laboratory work ten hours a week, lectures and recitations. Structure and reproduction of plants from the standpoint of evolution. Associate Professor Billings and Miss Charles.

51.—EXPERIMENTAL PLANT PHYSIOLOGY. Five hours, second semester, 3:30 to 5:30, or by appointment. Laboratory work



ten hours a week, reading and conferences. Prerequisite, course 2. Professor Stevens.

52.—**TAXONOMY OF PHANEROGAMS.** Five hours, first semester, 8 to 10. Classification of flowering plants, with special attention to the local flora. Laboratory and field work ten hours a week. Prerequisite, course 1. Miss Charles.

53.—**MORPHOLOGY OF FUNGI.** Three hours, first semester, 10:15 to 12:15. Lectures, with laboratory work six hours a week. Structure and reproduction of fungi, with special attention to species causing damage to crops. Prerequisite, course 3. Associate Professor Billings.

54.—**PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES.** By appointment, five hours, first or second semester, or both. A study of the forms and structure of plant members under varying environment. Laboratory work, field work and reading. Professor Stevens.

55.—**GENERAL BACTERIOLOGY.** Three hours, first semester, 1:30 to 3:30. Laboratory work, lectures and recitations. A general course on the relation of bacteria to soil, foods, sanitation, and disease. Prerequisite, course 2 or 3. Associate Professor Billings and Mr. Sherwood.

56.—**DAIRY BACTERIOLOGY AND WATER ANALYSIS.** Three hours, second semester, 1:30 to 3:30. Laboratory work, with recitations, six hours a week. (a) Relation of bacteria to milk and its products. Milk testing. (b) Bacteriological examination of water. Prerequisite, course 55. Associate Professor Billings and Mr. Sherwood.

57.—**DOMESTICATED PLANTS.** Two hours, first semester, 3:30 to 4:30, or by appointment. The origin and amelioration of cultivated plants, and the bearing of the results of plant breeding on the problem of evolution. Prerequisite, course 1. Professor Stevens.

58.—**PROBLEMS IN TAXONOMY.** Three hours, both semesters, 8 to 10, or by appointment. A critical study of some limited group of plants, with special reference to classification. Prerequisite, course 52. Miss Charles.

59.—**SPECIAL MORPHOLOGY OF THALLOPHYTES.** Three, five or ten hours a week, by appointment. Advanced work in special groups of the lower organisms. Associate Professor Billings.

70.—**ORGANIC EVOLUTION.** Three hours, second semester, at 9. This course will present the theory of evolution historically and in the light of recent important evidence derived from observation and experiment. Lectures, collateral reading and recitations. Professor Stevens and Professor McClung.

## CHEMISTRY.

Professor BAILEY.  
 Professor DUNCAN.  
 Associate Professor CADY.  
 Associate Professor BUSHONG.  
 Assistant Professor ALLEN.  
 Assistant Professor JACKSON.  
 Assistant Professor TAGUE.  
 Lecturer, Doctor CRUMBINE.  
 Miss HEDGER, Instructor.  
 Mr. BRODERSON, Instructor.  
 Mr. NASH, Instructor.  
 Mr. HOBBS, Assistant Instructor.  
 Mr. HUMPHREY, Assistant Instructor.  
 Mr. ROOD, Laboratory Assistant.  
 Mr. BRUCKMILLER, Laboratory Assistant.  
 Miss ANDERSON, Fellow in Chemistry.  
 Mr. MOORE, Ottawa Univ. Fellow.

**EQUIPMENT.**—The Chemistry Building was completed in 1900. The rooms are fully equipped with gas, water and compressed air. There are balance rooms on each floor, storerooms and instructors' rooms conveniently located. There are several large laboratories, one of which accommodates 280 students, another 145 students; the quantitative laboratory accommodates 80 and the organic 144. The largest lecture room seats over 300. Special attention has been paid to ventilation, which is accomplished by means of a fan blower forcing air into the laboratories, and hoods between all the windows to carry off injurious fumes. In the basement is a liquid-air plant, an assay laboratory, a metallurgical laboratory, and industrial research laboratories.

For illustration and demonstration the department is supplied with cylinders of compressed gases, combustion furnaces, balances, several hundred dollars' worth of electrical instruments and apparatus for illustrating physical chemistry, very complete apparatus for use in industrial chemistry and in metallurgy, besides numerous collections for illustration in the various lecture courses.

Work of the State Board of Health is carried on in a well-equipped food laboratory, and two water survey laboratories, one for mineral analysis, and the other for sanitary water analysis.

**ADVICE AS TO CHOICE OF COURSES.**—Students desiring to become professional chemists should select elementary chemistry, advanced inorganic chemistry, qualitative analysis, quantitative analysis, organic chemistry, industrial chemistry, physical chemistry and metallurgy.

Those desiring to teach should select not less than twenty-five hours and should include, besides some of the studies above mentioned, sanitary and applied chemistry and chemistry and physiology of foods.

For business or general culture, or as a foundation work for botany, zoölogy, geology, mineralogy or physics, at least ele-

mentary chemistry and advanced inorganic chemistry should be studied.

Those expecting to take graduate work will be expected first to make up undergraduate work to the point where they can do graduate work satisfactorily.

1.—ELEMENTARY CHEMISTRY. Five hours, first semester, 1:30 to 3:30; second semester, 1:30 to 3:30. Recitations, lectures and laboratory work. McPherson and Henderson's Study of Elementary Chemistry. Professor Bailey and assistants. Students presenting chemistry for admission to College are not admitted to this course for credit.

2.—INORGANIC CHEMISTRY. Five hours, first semester, 8 to 10 or 1:30 to 3:30. Prerequisite, course 1. Associate Professor Cady and assistants.

3.—QUALITATIVE ANALYSIS I.\* Five hours, second semester, 8 to 10 or 1:30 to 3:30. Lectures and recitations, Tuesday and Thursday, 8 to 9. Bailey and Cady's Guide to the Study of Qualitative Analysis. Prerequisite, course 2. Associate Professor Cady, and assistants.

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50.—QUALITATIVE ANALYSIS II. Three hours, second semester, 8 to 10. An advanced course, especially on the rare metals. Prerequisite, course 3. Associate Professor Cady.

51.—INDUSTRIAL CHEMISTRY. Three hours, first semester, at 9. A technical study of the manufacture of acids, alkalies, explosives, glass, pottery, porcelain, mortars, cements, paper, alcohol, vinegar, leather, etc. Thorpe's Outline of Industrial Chemistry. Prerequisite, course 1. Professor Duncan.

52.—SANITARY AND APPLIED CHEMISTRY. Two hours, first semester, 10:15 to 12:15. A study of the atmosphere, fuels, heating, ventilation, lighting, water supply, sewage, soap, and similar topics. Bailey's Sanitary and Applied Chemistry, part I. Prerequisite, course 1. Professor Bailey.

53.—CHEMISTRY AND PHYSIOLOGY OF FOODS. Three hours, second semester, 3:30 to 5:30. A study of food supply, its composition, preparation and adulteration. The study of dietetics from a chemical standpoint, balanced rations and economy of food is also carried on. Bailey's Sanitary and Applied Chemistry, part II. Not necessarily preceded by course 52. Prerequisite, course 1. Professor Bailey.

54.—QUANTITATIVE ANALYSIS I. Five hours, first semester, 3:30 to 5:30, or second semester, 10:15 to 12:15. Prerequisite, course 3. Assistant Professor Allen.

55.—QUANTITATIVE ANALYSIS II. Five hours, either semester. Prerequisite, course 54. In connection with this work some spe-

cialty, such as chemistry of the cement industry, of the glass industry, of the packing-house industry, sugar chemistry, iron analysis, or rock analysis, can be pursued. Assistant Professor Allen and assistants.

56.—WATER ANALYSIS. Three hours, second semester, by appointment. A laboratory course. The work includes a study of the mineral and sanitary analysis of waters. Prerequisite, course 54. Assistant Professor Young.

57.—ASSAYING AND METALLURGICAL ANALYSIS. Five hours, second semester, 3:30 to 5:30. The fire assay of the ores of gold, silver and lead, followed in the second half by the volumetric analysis of ores of copper, zinc, lead, manganese, etc. Lodge's Notes on Assaying and Low's Technical Methods of Ore Analysis. Assistant Professor Tague and assistant.

58.—FOOD ANALYSIS. Five hours, both semesters, by appointment. Must be preceded by courses 1, 2, 3 and 54. Assistant Professor Jackson.

59.—ORGANIC CHEMISTRY I. Five hours, both semesters, 1:30 to 3:30. Must be preceded by courses 1 and 2. Assistant Professor Bushong.

60.—ORGANIC CHEMISTRY II. (A continuation of course 59.) Five hours, both semesters, 3:30 to 5:30. Assistant Professor Bushong.

61.—METALLURGY I. Five hours, first semester, at 11:15. General metallurgy and metallurgy of iron and steel. Prerequisite, course 3. Assistant Professor Tague.

62.—METALLURGY II. Five hours, second semester, at 10:15. The metallurgy of lead, zinc and copper, followed by that of silver, gold, mercury and tin. Prerequisite, course 3. Assistant Professor Tague.

63.—METALLURGICAL LABORATORY. Two hours, first semester, by appointment. This course includes high-temperature measurements, calorimetry, preparation of slags and alloys, study of roasting, reduction, oxidation, amalgamation, chlorination, cyaniding, and leaching. Prerequisite, course 61 or 62. Assistant Professor Tague.

64.—PHYSICAL CHEMISTRY. Five hours, first semester, at 10:15. A course paying special attention to electrochemistry. Lectures and laboratory work. Prerequisites, course 3 and general physics and calculus. Associate Professor Cady.

65.—PHYSICAL CHEMISTRY. Five hours, second semester, at 10:15. A general course in theoretical and physical chemistry. Lectures and laboratory work. Prerequisite, course 54. Associate Professor Cady.



## DESIGN.

Professor GRIFFITH.  
Assistant Professor JONES.  
Miss BENSON, Instructor.

**EQUIPMENT.**—In the fall of 1911 the studios of the department of design will move into the new rooms provided for them in the first wing of the new Administration Building. They are well equipped, with many casts from the antique, books and plates upon the theory and history of ornamental design, printing presses, a potter's wheel, easels and drawing boards. The classical museum and the museum of natural history offer an abundance of material for the use of students in design. Kilns are available for the firing of pottery, and the equipment of Fowler Shops for the work in wood and metal.

**ADVICE AS TO CHOICE OF COURSES.**—The following courses are optional. Technical students to whom some drawing is essential are advised to take course 50. Students wishing training in artistic perception and graphic expression for its general culture value should take course 50, followed by 52 and 54.

**50.—FREE-HAND DRAWING.** Three hours, both semesters, 1:30 to 3:30. Drawing with pencil and charcoal from the cast and objects of still life, which aims to teach the student to construct form in a simple and correct manner; drawing with pen and ink and water colors for illustrative and reproductive processes. Professor Griffith.

**51.—FREE-HAND DRAWING.** Three hours, both semesters, 1:30 to 3:30. A continuation of course 50. Professor Griffith.

**52.—PRINCIPLES OF ART.** Two hours, first semester, at 1:30. A lecture course on the theory of the technical beauties of a work of art, presenting the principles of composition and perspective, together with a consideration of technical processes. The object of the course is to give the student a critical knowledge necessary to understand and more fully enjoy a work of art. Professor Griffith.

**53.—MANUAL ARTS.** No credit. A preparatory course in wood carving and construction, exercises and problems in metal work, including raised forms, chased and pierced decoration, soldering, brazing and finishing. One semester, five hours per week. Must be preceded or accompanied by course 50. Assistant Professor Jones.

**54.—DESIGN I.** Three hours, both semesters, at 10:15. The anatomy of pattern and the planning of ornament. Prerequisite, course 50. Miss Benson.

**55.—DESIGN II.** Three hours, both semesters, at 8. The application of design. Prerequisite, course 54. Miss Benson.

56.—APPLIED DESIGN I. One hour, one semester, five hours per week, by appointment. Must be preceded by courses 54 and 55. The application of design in the art of wood carving, inlaying, beaten metal, cast metal, etching, chasing and enameling on brass, copper and silver.

57.—APPLIED DESIGN II. One hour, one semester, five hours per week, by appointment. A continuation of course 56 and the making of jewelry.

58.—HISTORY OF DESIGN. Two hours, first semester, at 10:15. Prerequisite, course 57. Professor Griffith.

For other courses in drawing, see School of Fine Arts and School of Education.

### ECONOMICS. (See Sociology.)

### EDUCATION.

The following courses in the School of Education are open to College Juniors and Seniors, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Education as well as the College and will be admitted to the classes as students of the School of Education.

50.—HISTORY OF ANCIENT AND MEDIÆVAL EDUCATION. Three hours, first semester. Professor Olin.

51.—HISTORY OF MODERN EDUCATION. Three hours, second semester. Professor Olin.

59.—EDUCATIONAL CLASSICS. Two hours, first semester. Associate Professor Schwegler.

60.—EDUCATIONAL CLASSICS. Two hours, second semester. Professor Johnston.

64.—EDUCATIONAL PSYCHOLOGY. Three hours. Professor Johnston.

65.—GENETIC PSYCHOLOGY FOR TEACHERS. Two hours, first semester. Professor Johnston.

67.—ADVANCED EDUCATIONAL PSYCHOLOGY. Three hours, second semester. Professor Johnston.

68.—THE PHILOSOPHY OF EDUCATION. Three hours, second semester. Associate Professor Schwegler.

### ENGINEERING.

The following courses in the School of Engineering are open to College students, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the

School of Engineering as well as the College, and will be admitted to the classes as engineering students.

3.—DESCRIPTIVE GEOMETRY. Three hours, second semester. Assistant Professor Hood.

6.—ELEMENTARY MECHANICS. Two hours, first semester. Assistant Professor Hood.

2.—SURVEYING. Five hours, second semester. Associate Professor Dalton.

50.—MECHANICS. Five hours, first semester. Associate Professor H. A. Rice.

51.—STRENGTH OF MATERIALS. Five hours, second semester. Associate Professor H. A. Rice.

53.—HYDRAULICS. Two credit hours, first half of first semester. Assistant Professor Corp.

50.—DYNAMO MACHINERY. Three hours, first semester. Professor Shaad.

51.—THEORY OF ALTERNATING CURRENTS. Five hours, second semester. Professor Shaad.

57.—THERMODYNAMICS. Two and one-half hours' credit, first half of first semester. Professor Walker.

## ENGLISH LANGUAGE AND LITERATURE.

Professor DUNLAP.  
 Professor HOPKINS.  
 Associate Professor O'LEARY.\*  
 Associate Professor WHITCOMB.  
 Associate Professor SISSON.  
 Associate Professor BRYANT.†  
 Assistant Professor RAYMOND.  
 Assistant Professor LYNN.  
 Assistant Professor GRAY.  
 Assistant Professor JOHNSON.  
 Assistant Professor GARDNER.  
 Assistant Professor ———.  
 Miss GILBREATH, Instructor.  
 Miss WINSTON, Instructor.  
 Mr. FORSYTHE, Instructor.  
 Mr. SCHULTZ, Instructor.  
 Mr. STELTER, Instructor.  
 Miss MORGAN, Instructor.  
 Mr. WATTLES, Fellow.

EQUIPMENT.—Apart from a number of portraits and historical maps, the equipment for this department is the University library, in which are collections of volumes and periodicals relating especially to rhetoric and composition, to English literature, and to the English language. There are complete sets of journals, such as *Anglia* and the *Englische Studien*, and the pub-

\* Absent on leave, 1910-'11.

† Died October 20, 1910.

lications of the Early English Text Society, the English and American Dialect Societies, the Spenser Society, the Shakspeare Society, the New Shakspeare Society, the Shelley Society, and the Browning Society. The library also possesses the Shakspeare Jahrbuch, and facsimiles of the quartos and folios of Shakspeare. The total number of volumes pertaining to the subjects in this department is 8892. Of these 953 are devoted to Shakspeare, 6111 to English literature, and 1828 to English language and rhetoric. The English reading room is large and commodious, and is well adapted for study and investigation.

ADVICE AS TO CHOICE OF STUDIES.—Early in his course, and in no case later than his Junior year, every student should confer with an instructor in reference to choice of studies. *He should take special notice of the fact that certain elementary and fundamental courses scheduled for Freshman and Sophomore years—courses 1, 2, 10 and 11, or their equivalent—must be completed before he can be admitted to any other English courses whatever; and that courses 12 and 13, scheduled for the Sophomore year, are prerequisite to all succeeding courses in English literature except 14.*

The three principal fields of English study are English literature, English language, and English composition. In whichever of these three a student does his major work, he should give some part of his time to each of the other two. He should select courses that bear directly upon his special need and interest, offer variety of subject and method, and bring him into contact with several instructors.

*For the requirements for a teacher's certificate in English, see course 86 in the School of Education.*

### *Rhetoric and Composition.*

1.—RHETORIC AND ENGLISH COMPOSITION.\*\* Three hours, first semester, at 8, 9, 10:15, 1:30, 2:30 and 3:30. Themes and exercises, with outlines of rhetorical theory. Required of all Freshmen in the College not offering for entrance a fourth unit in English composition. Associate Professor Sisson and assistants.

2.—RHETORIC AND ENGLISH COMPOSITION.\*\* Two hours, second semester, at 8, 9, 10:15, 1:30, 2:30 and 3:30. A continuation of course 1. Required of all Freshmen in the College not offering for entrance a fourth unit in English composition. Associate Professor Sisson and assistants.

Credit for courses 1 and 2 is given provisionally and will be withdrawn for subsequent use of notably bad English.



50.—NARRATION AND DESCRIPTION. Three hours, first semester, at 8 and 9. A study of general principles, with exercises. A fundamental course, recommended as preparation for journalism 50 and 51 and English 55 and 58. Associate Professor O'Leary and Assistant Professor Lynn.

51.—NARRATION AND DESCRIPTION. Two hours, second semester, at 8 and 9. A continuation of course 50. Associate Professor O'Leary and Assistant Professor Lynn.

52.—EXPOSITION. Two hours, first semester, at 8. A study of general principles, with outlines and exercises. A fundamental course. Recommended as preparation for English 55 to 58, inclusive, and journalism 50 and 51. Associate Professor Sisson and Mr. Stelter.

53.—ARGUMENT. Three hours, second semester. A study of the general principles of logic as applied in discourse, with exercises and briefs. Must be preceded by course 52 and by a course in elementary logic. Professor Hopkins.

55.—LITERARY CRITICISM. Two hours, first semester, at 1:30. Study of the principles and methods of criticism through its literature, with practice in book reviewing and in critical writing. Professor Hopkins.

56.—VERSIFICATION. One hour, first semester, Monday, at 3:30. Study of the forms and principles of English verse, with exercises. Professor Hopkins.

57.—ESSAY WRITING. Two hours, second semester, at 10:15. A study of general principles, with exercises. Associate Professor O'Leary.

58.—PROSE INVENTION. Two hours, second semester, at 1:30. General survey of theories of literary art, with practice in original production. Library and conference course, with required thesis. Prerequisites, one or more advanced courses in English composition. Professor Hopkins.

#### *Language.*

60.—ELEMENTARY OLD ENGLISH (Anglo-Saxon). Three hours, first semester, at 3:30. Introductory course in Old English grammar, with reading of West Saxon prose texts. Should be preceded by courses 1 and 2 in German or their equivalent. A basic course for all other work in the English language. Assistant Professor ———.

61.—ELEMENTARY OLD ENGLISH. Two hours, second semester, at 3:30. An introduction to Old English poetry. Continuation of course 60. Assistant Professor ———.

62.—MIDDLE ENGLISH. Two hours, first semester, at 2:30. Language and literature of the fourteenth century, exclusive of Chaucer. Assistant Professor ———.

63.—HISTORY OF THE ENGLISH LANGUAGE. Three hours, second semester, at 3:30. Practical course for teachers and others. Begins with a simple introduction to the general processes of language. Includes a treatment of the sources and development of the English language, its pronunciation, inflections, and syntax. Should be preceded or accompanied by work in Old English. Assistant Professor ———.

64.—ADVANCED OLD ENGLISH. Three hours, first semester, at 1:30. Primarily for graduates. Beowulf, or selections from Caedmon and Cynewulf, at the option of the class. Must be preceded by course 60. Assistant Professor ———.

65.—EARLY ENGLISH. Two hours, second semester, at 2:30. Language and literature of the thirteenth century. Required thesis. Primarily for graduates. Should be preceded by elementary Old English. Assistant Professor ———.

66.—INTRODUCTION TO PHONETICS. Two hours, first semester, at 1:30. Primarily for graduates. Open to advanced students of any language. Assistant Professor ———.

67.—OLD AND MIDDLE ENGLISH GRAMMAR. Three hours, second semester, at 2:30. An elementary course, designed to accompany Education 86, for intending teachers who have not been able to take courses 61 or 63. Offers a rapid reading survey of the earlier forms of the English language, as illustrated in a few representative texts. Professor Hopkins.

68.—MODERN ENGLISH GRAMMAR. Two hours, second semester, at 3:30. English grammar, chiefly practical, for intending teachers. Open only to qualified applicants after consultation with the instructor. Assistant Professor Gray.

### *English Literature.*

10.—ENGLISH LITERATURE. Two hours, first semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Class study of representative authors, with required library reading. Open to all students of the College not offering English literature as a fourth unit of entrance English. Required for admission to all other courses in English, except from students who offer for entrance a fourth unit in English literature. Assistant Professor Johnson and assistants.

11.—ENGLISH LITERATURE. Three hours, second semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. A continuation of course 10. Required for admission to all other courses in English, except from students who offer for entrance a fourth unit in English literature. Assistant Professor Johnson and assistants.

12 *a* and *b*.—HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions, at 8, 9, and 10:15.

Two-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Textbooks, Long's History of English Literature, Newcomer Andrews's Twelve Centuries of English Poetry and Prose. Prerequisites, English 1, 2, 10, and 11. Required for admission to courses 60 to 66, inclusive, and courses 71 to 89, inclusive. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

13 *a* and *b*.—HISTORY OF ENGLISH LITERATURE. Two or three hours, second semester. Three-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions, at 8 and 9. A continuation of course 12. Prerequisites, English 1, 2, 10, 11, and 12. Required for admission to courses 60 to 66, inclusive, and courses 71 to 89, inclusive. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

14.—TYPES OF LITERATURE. Three hours, both semesters: First semester, at 3:30, poetry—the lyric, epic, and drama; second semester, at 2:30, prose—the essay, letter, biography, and novel. A view of English literature according to species, a method of studying and classifying literature, and a preparation for advanced courses. Prerequisites, English 1, 2, 10, and 11. Assistant Professor Gray.

71.—AMERICAN LITERATURE I. Three hours, first semester, at 1:30. General history, with special reference to the work of the chief American poets. Lecture and library course, with class study of representative selections. Professor Hopkins.

72.—AMERICAN LITERATURE II. Three hours, second semester, at 1:30. Study of later writers and of current literature, with special reference to fiction. Lecture and conference course, with required readings and reports. Professor Hopkins.

73.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours, first semester, at 9. The period covered is that from 1660 to approximately 1735. Associate Professor O'Leary.

74.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Three hours, second semester, at 9. Covers the period from 1735 to 1798. Associate Professor O'Leary.

75.—VICTORIAN LITERATURE, exclusive of the novel and Tennyson and Browning. Two hours, first semester, at 10:15. Professor Dunlap.

76.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, first semester, at 11:15. Prose, exclusive of the novel. Biographical and critical lectures. The essay. Criticism. History. The authors studied are Lamb, Hazlitt, De Quincey, Landor, Newman, Arnold, Carlyle, Macaulay, Ruskin, Pater, and Stevenson. Two hours of library work daily and preparation of two theses. Professor Dunlap.

77.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, second semester, at 9. Poetry. Biographical and critical lectures. The authors studied are Wordsworth, Coleridge, Southey, Byron, Arnold, Tennyson, and Browning. Two hours of library work daily and preparation of two theses. Professor Dunlap.

78.—SHAKSPERE. Three hours, both semesters, at 10:15. Lectures upon the life and times of Shakspeare. Study and interpretation of three plays, with special attention to literary form, plot construction, character study, and Elizabethan grammar. Two hours of library work required daily and preparation of two theses. Professor Dunlap.

79.—CHAUCER. Three hours, first semester, at 9. Lectures upon Middle English grammar and upon the life and times of Chaucer. Neither Old nor Middle English required for entrance. Careful reading of the Prologue, Knightes Tale, and the Nonne Preestes Tale. Rapid reading of a large part of the Canterbury Tales. Preparation of two theses. Professor Dunlap.

80.—SHELLEY AND KEATS. Two hours, second semester, at 11:15. Lectures, and interpretation of selected poems. Professor Dunlap.

81.—BROWNING AND TENNYSON. Two hours, second semester, at 8. Interpretative study of selected poems, with general view of the works of both authors. Assistant Professor Lynn.

82.—CARLYLE AND EMERSON. Two hours, second semester, at 2:30. The characteristics of each man's work and its relation to nineteenth century thought. Incidental study of Ruskin and Arnold. Lectures and class discussion of assigned reading. Assistant Professor Johnson.

83.—THE MODERN ENGLISH LYRIC. Two hours, second semester, at 3:30. The form and spirit of lyric poetry in general, and special study of a selected period. (Not given in 1911-'12.) Associate Professor Whitcomb.

84.—TECHNIC AND THEORY OF THE DRAMA. Two hours, first semester, at 2:30. Studies in dramatic dialogue, characterization, plot, and adaptation to the stage. Theory of the drama as a form of art, and a comparative view of its chief types in English literature. Associate Professor Whitcomb.

85.—HISTORY OF THE ENGLISH DRAMA. Three hours, first semester, at 2:30. From the early liturgical plays to 1642. General history of the drama; consideration of the causes at work upon the development of the drama, and a partial history of the stage. Class discussion and lectures. Assistant Professor Johnson.

86.—HISTORY OF THE ENGLISH DRAMA. Two hours, second



semester, at 2:30. English dramatic history from 1642 to the present time, with special attention given the Nineteenth Century. (Not given in 1911-'12.) Associate Professor Whitcomb.

87.—THE ENGLISH NOVEL. Three hours, second semester, at 11:15. An historical and critical survey of the English novel, from Defoe to Meredith. Lectures on the growth and development of the novel. Study of selected typical novels, illustrative of important phases of fiction. Two hours of library work daily and preparation of two theses. Professor Dunlap.

88.—THE ENGLISH ESSAY. Two hours, second semester, at 9. A study, historical and critical, of the essay as a literary form, from Bacon to the present time. Lectures, theses, and library work. Associate Professor O'Leary.

89.—THE DEVELOPMENT OF ENGLISH PROSE. Three hours, first semester, at 11:15. A study of the development of prose style from 1500 to 1700. Lecture and conference course, with required reading and written reports. Associate Professor Sisson.

### ENTOMOLOGY.

Professor HUNTER.  
Assistant Professor GLENN.  
Mr. LOHRENZ, Fellow.

EQUIPMENT.—The arrangement of the laboratories is such as to provide for: (1) General instruction; (2) research work in serial breeding experiments and conditions governing development. Special thermal regulators for determination of influence of temperature on development are used in these researches. A feature of great value is the recent completion of the cross-referenced card index to the current literature of the subject. The extensive collections, both biologic and systematic, offer exceptional facilities for comprehensive instruction in the various groups. A more extended notice of these collections will be found under the head of "Museums," *post*. A large series of cabinets has been especially arranged to aid in teaching. These are supplemented by models illustrating developmental processes. The materials for study and apparatus at hand afford an adequate fund for the courses offered.

ADVICE AS TO CHOICE OF COURSES.—Entomology as taught at the University is distinctly differentiated from the work in zoölogy. The following courses are designed to meet the needs of two classes of students, viz.: (1) Those who in general education desire some knowledge of the subject matter and general principles of animal biology, as illustrated by this division of the animal kingdom. For this class, courses 1 to 4, inclusive, are adapted. (2) Those preparing to become teachers and investigators engaged in research work. After completing the fundamental courses, 50 to 54, inclusive, the aims of each student will

largely determine the selection of advanced courses. The requirements for those expecting to teach zoölogy in secondary schools are courses 1 to 4, inclusive, and course 7. Those preparing for appointments as economic entomologists should take, if possible, 50 to 54, 55, and 56.

50.—GENERAL ENTOMOLOGY. Three hours, first semester, 10:15 to 12:15. This course includes a general survey of the morphology, distribution and behavior of the orders of insects. The work in the laboratory consists of a morphological study of types, followed by a comparison of each type studied with closely allied forms. A series of lectures and assigned readings accompany the laboratory work. Prerequisite, zoölogy 1. Professor Hunter and Assistant Professor Glenn.

51.—GENERAL ENTOMOLOGY II. Three hours. A continuation of course 50. Second semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Professor Hunter and Assistant Professor Glenn.

52.—SYSTEMATIC ENTOMOLOGY I. Two hours, first semester, 1:30 to 3:30. This course gives special prominence to the systematic position of the orders studied. The laboratory work consists of (a) determination of species; (b) careful morphological study of organs, with special reference to their evolution; (c) when possible, an extended study of the species of one or more families. In addition to the text, monographs and current literature of special groups will be used. Prerequisite, zoölogy 1. Assistant Professor Glenn.

53.—SYSTEMATIC ENTOMOLOGY II. Two hours, second semester, 1:30 to 3:30. A continuation of the work of course 52. Assistant Professor Glenn.

54.—MORPHOLOGY OF INSECTS. Three hours, first or second semester, by appointment. A continuation of course 51, conducted in more advanced manner. Students are required to review a piece of well-executed morphological work, with a view of leading up to original research on problems to be assigned. Professor Hunter.

55.—TAXONOMY OF INSECTS. Three hours, first or second semester. A continuation of course 53, enabling the student to undertake the serious study of some one family. Students qualified to take this course are afforded an opportunity to work with the material taken on the biological survey the previous summer. Professor Hunter.

56.—APPLIED ENTOMOLOGY. Two hours, first semester, 10:15 to 11:15. Lectures, readings, and observations in the field on forms of economic value; life histories, habits and methods of combating the injurious forms, and of utilizing the beneficial. Prerequisite, course 50 or 52. Assistant Professor Glenn.

FRENCH. (See Romance Languages and Literatures.)

## GEOLOGY AND MINERALOGY.

Professor HAWORTH.  
Assistant Professor TODD.  
Assistant Professor TWENHOFFEL.

**EQUIPMENT.**—The library includes about all the standard books on geology and mineralogy in the English, German and French languages, fairly complete sets of governmental, state and foreign reports, numerous American and foreign periodicals, complete sets of many of them, and transactions of scientific societies, domestic and foreign, all of which are located in the reading room of the Geology and Mining Building. Other periodicals and transactions which belong jointly to two or more departments are located in the Spooner Library Building, readily accessible to all students. In addition the department has numerous charts, maps, lantern slides, *papier-mâché* models of structural and topographic forms, sets of wooden and glass models for crystallography, petrographic microscopes, and hundreds of thin rock sections and other hundreds of specimens of crystalline rocks for classes in petrology.

Commodious and well furnished laboratories for both mineralogy and geology and extensive collections of rocks, characteristic fossils, minerals, crystals, ores and other economic products are all conveniently located in the same building, while the Natural History Museum, not far away, is unusually rich in the remarkable vertebrate fossils for which Kansas and the western plains are noted.

**ADVICE AS TO CHOICE OF COURSES.**—*Geology.* The following courses in geology are designed to meet the requirements of two classes of students: those wishing to become working geologists, and those wishing only a general outline of the subject as a part of a liberal education. In the former case the student is advised to take all the courses offered, as nearly as possible in the order given. In the latter case he should begin with 1, and take 50, 51, or 52 and 53, in any order. Course 1 is open to all students of the College except Freshmen. Courses 50 to 59, inclusive, are open to undergraduates, and to graduates who have not had their equivalents.

*Mineralogy.* Students wishing to specialize in mineralogy should take courses 60 and 61; those wishing to specialize in petrography, 60, 61, 62 and 63. Should the student desire to give only a limited time to the subjects of mineralogy and petrography, courses 1, 60 and 62 should be chosen. Course 60 is open to College Juniors and Seniors. Courses 61, 62 and 63 are open to Juniors and Seniors, and also to graduates who have not had their equivalents.

*Geology.*

Professor HAWORTH.

Assistant Professor TODD.

Assistant Professor TWENHOFEL.

1.—ELEMENTARY GEOLOGY.\* Five hours, each semester, daily, at 9, 10:15, 11:15, and 2:30. A study of the elementary principles of geology, including a general outline of geologic principles and geologic agencies. An acquaintance with the elements of chemistry, zoölogy and botany will be of advantage in this course. Assistant Professor Todd and Assistant Professor Twenhofel.

50.—AREAL GEOLOGY I. Two hours, first semester, at 10:15. This is a continuation of course 1, with special reference to the stratigraphy of land areas, continental development, the history of animal and plant life, and the uses of fossil forms in the identification and correlation of geologic horizons. Prerequisite, course 1. Assistant Professor Todd.

51.—AREAL GEOLOGY II. Three hours, second semester, at 10:15. A continuation of course 50. Assistant Professor Todd.

52.—ECONOMIC GEOLOGY I. Three hours, first semester, at 9. A general study of the metallic products of mine and quarry, considered from a scientific and a practical standpoint, including the nature, origin, amount, and geographic and geologic distribution of the same. Prerequisites, elementary chemistry and geology 1 or 60. Lectures and library work. Professor Haworth.

53.—ECONOMIC GEOLOGY II. Two hours, second semester, at 10:15. Nonmetallic products. A continuation of course 52. Professor Haworth.

54.—PHYSIOGRAPHY. Three hours, second semester, at 9. A study of the general principles of physiography, with detailed studies of specific areas in latter parts of course. Prerequisite, course 1. Lectures, textbook, and library work. Professor Haworth.

55.—DYNAMIC GEOLOGY I. Two hours, first semester, by appointment. A brief course on the elementary principles of dynamic geology, including a study of continental development, mountain areas, mountain structure, mountain origin, and kindred subjects. Lectures, library and laboratory work. Prerequisites, courses 1, 50, and 51. Professor Haworth.

56.—DYNAMIC GEOLOGY II. Three hours, second semester. A continuation of course 55. Professor Haworth.

57.—INVERTEBRATE PALEONTOLOGY I. Five hours, first semester, by appointment. Consideration will first be given to the principles of paleontology, after which those invertebrate animals found in a fossil state will be studied in respect to their



structure, classification and evolution. Lectures, library, and laboratory work. Geology I and zoölogy I are prerequisites, and zoölogy II very desirable. Assistant Professor Twenhofel.

58.—INVERTEBRATE PALEONTOLOGY II. Five hours, second semester, by appointment. A continuation of course 57, but will be stratigraphical in its character. A study will be made of the principles of stratigraphy, and fossils will be studied as indices of time and geography. Lectures, library, and laboratory work. Invertebrate paleontology I is prerequisite. Assistant Professor Twenhofel.

### *Mineralogy.*

Professor HAWORTH.

Assistant Professor TODD.

60.—ELEMENTARY MINERALOGY I. Five hours, second semester, daily, 3:30 to 5:30. A brief course in crystallography, blow-pipe analysis, and systematic mineralogy, consisting of lectures and laboratory work. Assistant Professor Todd.

61.—SYSTEMATIC MINERALOGY. Five hours, first semester, daily, by appointment. This course is a continuation of mineralogy I, including an extended study of mathematical and physical crystallography. Assistant Professor Todd.

62.—PETROGRAPHY. Three hours, first semester, by appointment. This course includes a study of the mineralogical and chemical composition of rocks, their origin, structural features, and classification. Professor Haworth.

63.—PETROGRAPHY. Three hours, second semester, by appointment. A continuation of course 62. Professor Haworth.

## GERMANIC LANGUAGES AND LITERATURES.

Professor CARRUTH.

Associate Professor ENGEL.

Assistant Professor CORBIN.

Assistant Professor KRUSE.

Assistant Professor CAMPBELL.

Assistant Professor BRIGGS.

Assistant Professor STURTEVANT.

Miss WILSON, Instructor.

Mr. SPINDLER, Instructor.

Mr. SEIPT, Instructor.

Miss JONES, Instructor.

Mrs. NEWPORT, Instructor.

Miss LAPTAD, Fellow.

Mr. BOETHIUS, Fellow.

EQUIPMENT.—The German department has an excellent stereopticon and over 1000 stereopticon slides, illustrating scenery, costumes, and biography; an increasing number of excellent photographs and prints in frames; a set of thirty German wall maps showing the various separate states, and a few busts. The department has a Columbia graphophone and is accumulating a series of speech records for illustration of differing German

pronunciation. There are 3252 volumes in the library of the German department, and twenty-one philological and literary journals are received.

The department has also a valuable collection of 3000 unbound dissertations and school programs, covering all fields of Germanistic scholarship. With the present library and this acquisition of special studies, the German department is prepared to encourage graduate study at the University of Kansas in Germanic languages.

The Deutscher Verein owns a piano, which is used for accompanying the German songs of the Verein.

ADVICE AS TO CHOICE OF COURSES.—Students who plan to become teachers of German in high schools and academies should consult with the head of the department before the close of the Sophomore year. An outlined course for the four College years will be found on the department bulletin board, and is recommended to the careful attention of those concerned. Courses 1 to 13, inclusive, are open to all students of the College. Courses 50 to 58 are open to both undergraduates in the College and to graduate students. The full amount of Latin 1, 2, 3 for entrance is required as preparation for German 1 and 2. Students who enter with a deficiency in Latin and wish to take German 1 or 2 may do so in a practice class, taught by an advanced student, or in the Lawrence high school, or with a private tutor. Courses 1, 2, 3, 4, 5, must be taken in this order.

1.—GERMAN GRAMMAR. Five hours, first semester, at 8, 9, 10:15, 11:15, 1:30 to 3:30, 2:30; second semester, at 11:15 and 1:30. The twenty-two lessons of Carruth's Otis's Grammar, with composition exercises; Carruth's Reader, about fifty pages. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Miss Wilson, Mr. Seipt, Miss Jones, Mrs. Newport, and Mr. Spindler.

With the afternoon division, from 1:30 to 3:30, the laboratory method is used, requiring two hours' classroom work and one hour preparation outside. It is open to students of the College only. The other divisions will be determined by convenience of hours alone. Practice classes in beginning German will be conducted at eight o'clock. To these a limited number of students who lack the requirement of entrance Latin will be admitted.

2.—GERMAN READER, completed. Five hours, first semester, at 9, 1:30, and 2:30; second semester, at 8, 9, 10:15, 11:15, 1:30, and 3:30. Carruth's Reader, completed. Schiller's Wilhelm Tell (complete). Heyse's Die Blinden used as a basis for narrative and conversation. Also special exercises in word order and auxiliary verbs, and sight-reading. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Miss Wilson, Mr. Seipt, Mrs. Newport, and Mr. Spindler.

3.—**GERMAN PROSE.** Five hours, first semester, at 8, 9, 10:15, 11:15, 2:30, and 3:30; second semester, at 9, 2:30, and 3:30. Lessing's *Minna von Barnhelm*, Schiller's *Der dreissigjährige Krieg*, etc., preceded by review of grammar. Sight-reading. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Mr. Seipt, Mrs. Newport, Miss Jones, and Mr. Spindler.

4.—**SCHILLER'S WALLENSTEIN.** Five hours, second semester, at 8, 9, 10:15, 11:15, 2:30, and 3:30; first semester, at 10:15 and 3:30. Outline of German literature. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Miss Wilson, Mr. Seipt, and Mrs. Newport.

5a.—**GERMAN COMPOSITION.** Required of all students for admission to subsequent courses. Three hours, first semester, at 8, 9, and 10:15; second semester, at 9 and 10:15. Translation of connected English; Pope's *German Composition*, v. Jagemann's *German Syntax*, Fossler's *Practical German Conversation*. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Sturtevant, Miss Wilson, and Mr. Seipt.

5b.—**GERMAN COMPOSITION.** Two hours, second semester, at 9 and 10:15. A continuation of course 5a, with special drill exercises in grammar and syntax and original compositions. Open to students who have had course 5a, and to others only by special permission of the instructor. Associate Professor Engel, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Sturtevant, Mr. Seipt, and Mrs. Newport.

6.—**GERMAN CONVERSATION.** Two hours, first semester, at 9. Exercises in practical conversation, based on modern German prose. Must be preceded by 5a. Assistant Professor Campbell.

7.—**GOETHE'S EGMONT**, with Schiller's two essays on *Egmont*. Two hours, second semester, at 10:15. Miss Wilson.

8.—**SCHILLER'S DIE BRAUT VON MESSINA.** Two hours, first semester, Tuesday and Thursday, at 9 and 10:15. Associate Professor Engel and Assistant Professor Kruse.

9.—**SCHILLER'S DRAMAS.** Three hours, second semester, at 10:15. *Maria Stuart*, *Die Jungfrau von Orleans*. Associate Professor Engel.

10.—**LESSING'S DRAMATURGIE.** Two hours, second semester, by appointment. Reading of portions of the *Hamburgische Dramaturgie* and a closer study of some of the problems which Lessing

touches upon. Designed for students who wish to read some critical prose. Assistant Professor Campbell.

Courses 7, 8, 9 and 10 are designed primarily as complements to the courses in composition 5a and 5b, and may not be taken subsequently except by special arrangement. Not more than five hours will be credited from this group.

11.—LESSING'S NATHAN DER WEISE. Three hours, first semester, at 11:15. Professor Carruth or Assistant Professor Corbin.

12.—GOETHE'S TASSO. Two hours, first semester, at 11:15. Assistant Professor Corbin.

13.—GOETHE'S FAUST (parts I and II). Three hours, second semester, at 11:15. Professor Carruth or Assistant Professor Corbin.

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50.—GERMAN LITERATURE. Five hours, first semester, at 10:15. An outline history. Lectures, the class following Kluge and Scherer or Francke. Essays and criticisms by members of the class. Open only to students who have had twenty-five hours of the preceding courses or equivalent. Professor Carruth.

51.—GERMAN LITERATURE OF THE EIGHTEENTH CENTURY. Five hours, second semester, at 10:15. Klopstock, Wieland, Lessing, Herder, Goethe, and Schiller. Reading the chief works, and reviews. (Not given in 1911-'12.) Professor Carruth.

52.—HISTORY OF GERMAN PROSE FICTION. Five hours, second semester, at 10:15. Lectures on the history of the novel and on methods and schools in fiction. Hauff, Scheffel, Freytag, Keller. Careful reading of one work by each author; others outside. Theses on separate authors and on the whole course, by members of the class. Professor Carruth.

53.—THE LYRICS AND BALLADS OF GOETHE AND SCHILLER. Three hours, first semester, by appointment. Study of the lyrics and ballads in connection with the lives and literary development of the authors. Lectures on the nature of the lyric and ballad. Assistant Professor Corbin.

54.—THE ROMANTIC LYRIC. Two hours, second semester, by appointment. Lectures on the romantic school in general. Study of the principal lyric writers from Novalis to Heine. Assistant Professor Corbin.

55.—THE REALISTIC DRAMA. Three hours, first semester, at 8. A brief consideration of the development of the German drama, followed by a more intensive study of the dramas of Hebbel, Ludwig, and Anzengruber. Lectures, readings, and reports. Assistant Professor Kruse.

56.—THE NATURALISTIC DRAMA. Two hours, second semester, at 8. Hauptmann, Sudermann, and Halbe. Lectures, readings,



and reports. Should be preceded by course 55. Assistant Professor Kruse.

57.—THE DRAMA OF THE ROMANTICISTS. Two hours, second semester, at 8. Heinrich von Kleist, Grillparzer, and Wagner. Lectures, readings, and reports. This course alternates with course 56. Assistant Professor Kruse.

58.—MODERN SWEDISH. Two hours, first semester, and three hours, second semester, by appointment. Fort's Elementary Swedish Grammar; Hildebrand's Läsobok, Esaias Tegnér's Fritiofssaga and Nattvardsbarnen. (Not given in 1910-'11.) Assistant Professor Sturtevant.

## GREEK.

Professor WILCOX.  
Associate Professor STERLING.

EQUIPMENT.—Twenty-nine casts of sculpture, five models, a series of facsimile reproductions of Mycenæan works of art, a relief map, numerous wall maps, 800 photographs, 500 plates (many colored), 55 illustrated folios, 2500 volumes in library, 15 current periodicals, 2350 stereopticon slides.

ADVICE AS TO CHOICE OF COURSES.—Those who aim to become teachers of Greek or Latin or any other language, or who take Greek for general culture or discipline, should take the courses in order from 1 to 57, or as many of them as they have not taken before entering the University, or have time to take. Students preparing for the ministry will find it best to follow the same plan, and take the course in New Testament Greek in addition or in place of some course in classical Greek they might otherwise take. Students who aim simply at reading the New Testament in the original for their own pleasure or profit can accomplish that by taking courses 12 and 13. Students of science and English may get in course 58 a good working knowledge of the scientific and other English words that are derived from Greek. Students of all literatures who can give no more time to Greek may get a good idea of the content of Greek literature, and especially a valuable knowledge of mythology, from courses 59 and 60, or a partial knowledge from either of those courses. Those who desire an introduction to the architecture of all periods may get it in course 61; to the sculpture and painting of all periods, in course 62. Greek students should take also the courses in Greek and Roman history, in the history of philosophy, and as many literary courses as possible.

### *For Students of Classical Greek.*

1.—ELEMENTARY GREEK. Five hours, first semester, at 9. White's First Greek Book. Introductory course, aiming at a

mastery of forms and syntax and the most common Attic vocabulary. Associate Professor Sterling.

2.—XENOPHON'S ANABASIS, four books. Five hours, second semester, at 9. Application of principles learned in preceding course, with a study of Xenophon's life and works and a comparison of the Anabasis with records of other great military retreats. Associate Professor Sterling.

3.—HOMER'S ILIAD. Benner's Selections. Three hours, first semester, at 10:15. Reading of as much as possible in the original and the rest of the Iliad in translation. Study of Homeric forms and versification, with lectures on the epic style and Homeric life and times. Professor Wilcox.

4.—STORIES AND LEGENDS. Mythology in the original Greek. Two hours, first semester, at 10:15. The aim of this course is to give the student a knowledge of the many stories of gods, heroes and men that have come down to us from Greek authors. Professor Wilcox.

5.—PLATO. The Apology, Crito, and selections from the Phædo and the Symposium. Three hours, second semester, at 10:15. A study of the life and work of Socrates and an introduction to the writings of Plato. Professor Wilcox.

6.—HERODOTUS. Merry's Selections. Two hours, second semester, at 10:15. Reading of Merry's Selections in the original and other significant selections in translation. Lectures on the style and character and influence of Herodotus as a historian. Associate Professor Sterling.

7.—GREEK TRAGEDY. Antigone of Sophocles and Iphigenia among the Taurians of Euripides. Three hours, first semester, at 11:15. Study of dramatic form and history of the Greek drama. Lectures on the Greek theater. Associate Professor Sterling.

8.—PLUTARCH'S LIFE OF CÆSAR. Two hours, first semester, at 11:15. Du Pontet's Selections read in the original, and the rest in translation. Especially for Latin students, but open to all who are prepared to take the course. Associate Professor Sterling.

9.—DEMOSTHENES. Three hours, second semester, at 11:15. The Philippics. Study of the history of oratory and of the life and times of Demosthenes. Associate Professor Sterling.

10.—MODERN GREECE IN ANCIENT GREEK. The Greek War of Independence in Ancient Greek, by Chambers. An attempt to connect the present-day Greece with the past. Two hours, second semester, at 11:15. Associate Professor Sterling.

50.—THE CLOUDS OF ARISTOPHANES AND MEMORABILIA OF XENOPHON. Three hours, first semester, at 9, or by appointment.

Outside reading of other plays of Aristophanes, a study of the methods of the comic stage and the sources for the life of Socrates. (Not given in 1911-'12.) Professor Wilcox.

51.—THE GORGIAS OF PLATO. Two hours, first semester, at 9, or by appointment. Outside reading of other dialogues of Plato, with especial reference to the methods of the sophists. Lectures and readings on Greek philosophy. Professor Wilcox. (Not given in 1911-'12.)

52.—HOMER'S ODYSSEY. Three hours, second semester, at 9, or by appointment. Reading of the whole book in the original, with critical studies of selected portions. Outside reading of Seymour's *Life in the Homeric Age* and Murray's *Rise of the Greek Epic*. (Not given in 1911-'12.) Professor Wilcox.

53.—THUCYDIDES. Two hours, second semester, at 9, or by appointment. Reading of as much as possible in the original and the rest in translation. Studies in his style and historical method compared with Herodotus and later and modern historians. (Not given in 1911-'12.) Professor Wilcox.

54.—GREEK LITERARY CRITICISM. Three hours, first semester, at 9, or by appointment. The *Frogs* of Aristophanes and *Chœphoroi* of Æschylus, and *Poetics* of Aristotle. Professor Wilcox.

55.—LYRIC POETRY. Two hours, first semester, at 9, or by appointment. The elegiac and iambic poetry, Solon, Theognis, and others. Professor Wilcox.

56.—GREEK LITERARY CRITICISM. Two hours, second semester, at 9, or by appointment. The *Electras* of Sophocles and *Euripides*, and *Poetics* of Aristotle and Longinus on the Sublime. Professor Wilcox.

57.—LYRIC POETRY. Three hours, second semester, at 9, or by appointment. The melic poetry, Alcæus, Sappho, Simonides, Pindar, and Bacchylides. Professor Wilcox.

*For Students of the New Testament.*

12.—ELEMENTARY NEW TESTAMENT GREEK. An introductory course for students who have no knowledge of Greek and wish to get the New Testament Greek alone. Three hours, second semester, at 10:15. Associate Professor Sterling.

13.—NEW TESTAMENT II. Two hours, first semester, at 10:15. Reading of as much of the New Testament as possible in the original Greek. Associate Professor Sterling.

*For Students of English and Natural Science.*

58.—THE GREEK IN ENGLISH. Three hours, first semester, at 10:15. A study of English etymology, with special reference to Greek. Scientific and ordinary English words are traced to

their origin in Greek. Only so much Greek is used as is necessary for the purpose. Associate Professor Sterling.

*Courses which Require no Knowledge of the Greek Language.*

59.—GREEK LITERATURE IN TRANSLATIONS. Three hours, first semester, at 11:15. The epic and lyric poetry, Herodotus, Plato, and Plutarch. The aim of this course is to give students of any literature a knowledge of the form and content of the literature that has influenced most widely all other literatures. Professor Wilcox.

60.—THE GREEK DRAMA IN TRANSLATIONS. Two hours, second semester, at 11:15. A dozen dramas or more of Æschylus, Sophocles, Euripides and Aristophanes are read and discussed from the points of view of form and content and influence on later and modern dramas. Professor Wilcox.

61.—GREEK ARCHITECTURE. Two hours, first semester, at 11:15. Most of the time is spent on Greek architecture, but the fundamental principles of all styles are studied, with especial reference to the survivals and revivals of Greek elements. Professor Wilcox.

62.—GREEK SCULPTURE AND PAINTING. Three hours, second semester, at 11:15. This course also includes for purposes of comparison and appreciation a summary view of the sculpture and painting of later and modern times. Professor Wilcox.

HARMONY. (See Music.)

HISTORY AND POLITICAL SCIENCE.

Professor HODDER.

Professor BECKER.

Associate Professor PATTERSON.

Associate Professor DYKSTRA.

Assistant Professor CRAWFORD.

Assistant Professor DAVIS.

Mr. WISE, Fellow in European History.

Mr. INGALLS, Fellow in American History.

EQUIPMENT.—The University library is supplied with all the important secondary authorities and with a considerable amount of source material. The latter includes the Monumenta Germaniæ Historica, the Scriptores Rerum Italicarum, the Parliamentary History and Hansard's Debates, the Journals of the Lords and Commons, the British Statutes at Large, the Reports of the English Historical MSS. Commission, and several series of the Calendars of State Papers. The library also contains such periodical publications as the Annual Register, Gentleman's Magazine, Niles's Register and De Bow's Review. The sets of congressional debates, American State Papers and Kansas state documents are complete. The set of congressional documents begins with the second session of the twenty-eighth Congress. The supply of wall maps for classroom use is exceptionally large.



ADVICE AS TO CHOICE OF COURSES.—The plan of the department is to furnish general courses for long historical periods, a series of intensive courses for shorter periods, and a limited number of courses in special fields. The courses in mediæval and English history serve as an introduction to all the work of the department. The general courses in modern European and American history are suited to the needs of students who do not intend to specialize in history, and the general course in one of the two fields may be taken to advantage by those intending to specialize in the other. History 57 to 60 give two years of continuous upper-class work in the history of modern Europe; history 61 to 64 give two years of continuous upper-class work in American history, and political science 50 to 56 give two years of continuous upper-class work in political science. A reading knowledge of French and German is advantageous to upper-class students of history and political science and indispensable to graduates. Students intending to take a major in this field should, early in their course, consult the instructors in the department in regard to the best arrangement of their work.

TEACHER'S CERTIFICATE.—Students desiring to secure a teacher's certificate will be expected to complete about thirty-six hours of work in the department and must cover, either in general or intensive courses, the entire field of history that is taught in the high schools. Students desiring a recommendation to teach civics are required to take political science 52. The granting of the certificate will depend not only upon the amount of work done but also upon its being accomplished with a considerable degree of success.

### *History.*

1.—GREEK HISTORY. Two hours, first semester, at 10:15. The course will trace the political and intellectual development of the Greeks and also emphasize social and economic changes. Lectures, quizzes and collateral reading. Not open to students who have entrance credit for an equivalent course. Associate Professor Patterson.

2.—ROMAN HISTORY. Two hours, second semester, at 10:15. A general survey, in which the period of the late republic and early empire receives special attention. Follows the course in Greek history. Lectures, quizzes and collateral reading. Not open to students who have entrance credit for an equivalent course. Associate Professor Patterson.

3.—MEDIÆVAL HISTORY I. Three hours, first semester, Monday and Wednesday, at 8, and a third hour by appointment. A history of Europe from the barbarian invasions to the Crusades. A fundamental course introductory to all the work in European history. Lectures, quizzes, collateral reading and reports. Associate Professor Patterson.

4.—MEDIÆVAL HISTORY II. Three hours, second semester, Monday and Wednesday, at 8, and a third hour by appointment. Covers the history of Europe from the Crusades to the beginning of the sixteenth century. Lectures, quizzes, collateral reading and reports. Continues and should be preceded by mediæval history I. Associate Professor Patterson.

5 *a* and *b*.—ENGLISH HISTORY I. First semester, *a*, three hours, at 8 and 9, and *b*, two hours, at 8 and 9. Traces the development of England, Scotland and Ireland, with emphasis upon the growth of economic, social and political institutions. Course *a* extends to 1603, and course *b* to 1485. Recitations and occasional lectures. Not open to students who have entrance credit for English history. Assistant Professor Crawford.

6 *a* and *b*.—ENGLISH HISTORY II. Second semester, *a*, two hours, at 8 and 9, and *b*, three hours, at 8 and 9. Continue courses 5 *a* and *b*, and must be preceded by them. Not open to students who have entrance credit for English history. Assistant Professor Crawford.

7.—MODERN EUROPEAN HISTORY I.\* Three hours, first semester, at 11:15. A general survey of European development from 1500 to 1715. Continues the course in mediæval history. Professor Becker.

8.—MODERN EUROPEAN HISTORY II.\* Three hours, second semester, at 11:15. Continues the preceding course from 1715 to 1900. Professor Becker.

9 *a* and *b*.—AMERICAN HISTORY I. First semester, *a*, three hours, at 8 and 9, and *b*, two hours, Tuesday and Thursday, at 8. A general course, covering the period in the three-hour course to 1789 and in the two-hour course to 1763. Not open to students who have entrance credit for American history. Assistant professor Davis.

10 *a* and *b*.—AMERICAN HISTORY II. Second semester, *a*, two hours, at 8 and 9, and *b*, three hours, at 8. Continues courses 9 *a* and *b* from 1789 and 1763, respectively, and preferably preceded by them. Assistant Professor Davis.

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50.—ADVANCED GREEK HISTORY. Two hours, first semester, at 11:15. Traces political and intellectual development of the Greeks. Covers much the same ground as course 1, but is more particularly intended for students intending to teach. Not open to students who have had course 1. Associate Professor Patterson.

51.—ADVANCED ROMAN HISTORY. Two hours, second semester, at 11:15. A general survey of Roman history, covering much the same ground as course 2, but intended for more advanced

students, particularly for those intending to teach. Not open to students who have had course 2. Associate Professor Patterson.

52.—**MEDIÆVAL CULTURE.** Two hours, second semester, at 9. A survey of the intellectual development of Europe from Augustine to Dante, including such subjects as mediæval literature, scholasticism, the universities, architecture, and the rise of the vernacular languages. Must be preceded by courses 3 and 4. Associate Professor Patterson.

53.—**MEDIÆVAL INSTITUTIONS.** Two hours, first semester, at 9. Growth of political and ecclesiastical institutions during the feudal period and a detailed analysis of the organization of society in the twelfth and thirteenth centuries. Must be preceded by courses 3 and 4. (Not given in 1911-'12.) Associate Professor Patterson.

54.—**THE ITALIAN RENAISSANCE.** Two hours, first semester, at 9. A survey of the political, social, economic, intellectual and artistic development of the Italian people from the fourteenth to the sixteenth centuries. Must be preceded by courses 3 and 4. Associate Professor Patterson.

55.—**ENGLISH INSTITUTIONS I.** Three hours, first semester, at 10:15. Treats of the foundations of parliament, central and local government, the judiciary, feudalism, manorial system and guilds, to 1485. Lectures, recitations and collateral reading. Assistant Professor Crawford.

56.—**ENGLISH INSTITUTIONS II.** Three hours, second semester, at 10:15. Covers the Tudor absolutism, the Reformation, the struggle between the crown and parliament, and the development of parliamentary government, with special emphasis upon the nineteenth century. Lectures, recitations and collateral reading. Continues and must be preceded by English institutions I. Assistant Professor Crawford.

57.—**THE REFORMATION.** Two hours, first semester, at 1:30. A study of certain aspects of the Protestant revolt and of the Catholic reformation in the sixteenth century. Should be preceded by course 7 or by course 54. Professor Becker.

58.—**EUROPE IN THE EIGHTEENTH CENTURY.** Two hours, second semester, at 1:30. Devoted mainly to a study of the institutions of France under the Old Régime, and of the movement for reform in the eighteenth century. Designed as an introduction to course 59. May advantageously be preceded by course 8. Professor Becker.

59.—**FRENCH REVOLUTION AND NAPOLEONIC ERA.** Three hours, first semester, at 1:30. History of Europe, more particularly of France, from 1789 to 1815. Open only to those who have taken course 8 or course 58. Professor Becker.



60.—EUROPE IN THE NINETEENTH CENTURY. Three hours, second semester, at 1:30. History of Europe from 1815 to 1878. Students who take this course will find it an advantage to have had course 8 or course 59. Professor Becker.

61.—AMERICAN COLONIAL HISTORY. Three hours, first semester, at 2:30. This course covers the discovery of America, the period of Spanish and French exploration, and the origin and development of the English colonies. Political science 4 may be taken to advantage at the same time. Professor Hodder.

62.—THE REVOLUTION AND THE CONSTITUTION. Three hours, second semester, at 2:30. A study of the causes and results of the American Revolution and of the formation of the constitution. A continuation of course 58, but not necessarily preceded by it. Professor Hodder.

63.—PRESIDENTIAL ADMINISTRATIONS I. Five hours, first semester, at 3:30. The political and constitutional history of the United States from 1789 to 1840. A topical treatment of the most important phases of American history. Open to Seniors. Should be preceded by political science 52. Professor Hodder.

64.—PRESIDENTIAL ADMINISTRATIONS II. Five hours, second semester, at 3:30. The political and constitutional history of the United States from 1840 to 1876. Treats the causes and results of the Civil War. Continuation of course 60. Professor Hodder.

65.—HISTORICAL METHOD. Two hours, first semester, at 1:30. A study of methods of investigation and presentation in history, and of the work of different historians, as illustrating different methods. (Not given in 1911-'12.) Professor Becker.

*Political Science.*

1.—AMERICAN GOVERNMENT.\* Five hours, first semester, at 10:15 and 11:15, and repeated the second semester, at the same hours. A systematic study of the development and structure of American government, national, state and local, with emphasis upon actual workings. Associate Professor Dykstra.

50.—INTRODUCTION TO POLITICAL SCIENCE. Three hours, first semester, at 9. Deals with the fundamental principles of political science: the theory of the state, its origin, development, powers and organization; the classification of states, and questions of law, rights and citizenship. Associate Professor Dykstra.

51.—EUROPEAN GOVERNMENT. Three hours, second semester, at 11:15. An examination of the constitutions and political systems of the leading European states. Should be preceded by course 50. Assistant Professor Davis.



52.—AMERICAN CONSTITUTIONAL LAW. Two hours, first semester, at 2:30. A study of the judicial construction of the constitution of the United States from the political rather than from the legal standpoint. Recitations. Professor Hodder.

53.—INTERNATIONAL LAW. Two hours, second semester, at 2:30. A statement of the principles of public international law, illustrated by cases drawn from American diplomatic history. Professor Hodder.

54.—GOVERNMENT OF DEPENDENCIES. Two hours, first semester, at 11:15. A study of the principal colonial systems and of present questions in colonial administration. Assistant Professor Davis.

55.—MUNICIPAL GOVERNMENT. Three hours, second semester, at 9. A comparative study of the government of cities in Europe and America, their relation to the central government, their organization and administration. Associate Professor Dykstra.

56.—POLITICAL THEORIES. Two hours, second semester, at 11:15. A brief review of ancient and mediæval political philosophy, followed by a study of modern English and continental political theories. Open to Seniors. Associate Professor Dykstra.

## HOME ECONOMICS.

Professor DAY.

EQUIPMENT.—The department has six rooms in the basement of Fraser Hall, attractively furnished. In the foods laboratory each student is supplied not only with ordinary cooking utensils, but with thermometers and balances, to allow of making work accurate, and with chemical equipment and microscopes for a fundamental study of the properties of food materials. A small dining room and kitchen are equipped for use in studying dietetic principles. The standard books on the subject are in the library.

ADVICE AS TO CHOICE OF COURSES.—Students who plan to take work in the department should notice carefully the prerequisites for the various courses and make in time the proper preparation in science and art. Students able to take only one course in the department should take course 80 if they wish a broad outlook on the problems of Home Economics, or course 50, if they prefer a more detailed study of one phase of the work. Courses 50, 51, 60 and 80 are for the general student; course 52 for those wishing to specialize as teachers or otherwise.

50.—FOODS. Five hours, first semester. An experimental study of the properties of different classes of nutrients, the composition of different food principles involved in their preparation for the table, including practical applications in cooking. Pre-

requisites, elementary physics and elementary chemistry. Professor Day.

51.—DIETETICS. Three hours, first semester. A study of food value equivalents, principles of dietetics, planning and preparing meals to satisfy different economic and dietetic conditions. Diet for certain diseased conditions. Principles of home nursing. Prerequisites, course 50 and physiology. Professor Day.

52.—SPECIAL PROBLEMS IN FOOD PREPARATION AND DIETETICS. Five hours, second semester. A critical study of common theories and practice of food preparation and dietetics, with the investigation of some special problem by each student. Prerequisites, courses 50 and 51, chemistry 1 and 50, botany 1, 2, and 55. Professor Day.

60.—THE HOUSE. Three hours, first semester. A study of the furnishing and care of the house from the standpoint of sanitation, convenience, economics and art. Prerequisites, chemistry 52, and drawing and design 50 and 54. Professor Day. (Not given in 1911-'12.)

80.—HOME ADMINISTRATION. Three hours, second semester. A study of the economic and sociological problems of the home in the past and present. Prerequisites, Zoölogy 1 and either Sociology 50 or Economics 1. Professor Day.

ITALIAN. (See Romance Languages and Literatures,)

### JOURNALISM.

Director HARGER.

Assistant Professor FLINT.

Mr. MURRAY, Assistant Instructor.

The courses in newspaper writing, established in 1904, were organized as the department of journalism in the fall of 1909. The aim of the work in this department is to give a practical knowledge of the gathering of news, the preparation of news and advertising "copy," the writing of editorial and feature matter, the "making up" of a newspaper, and the management of business interests such as the advertising and subscription departments. The department offers technical courses to students in the Sophomore, Junior, and Senior years, makes requirements as to preparatory courses in the Freshman year, and offers recommendations regarding supplementary courses to be pursued during the four years of University work.

PRACTICAL WORK.—A large part of the *Kansan*, the student paper of the University, published three times a week, is written and edited by members of the journalism classes. Correspondence for Kansas papers and for metropolitan papers is carried on by

students in the various courses. In connection with the University is a complete printing office, in which students are employed. A Mergenthaler linotype is installed here, and each student in journalism is expected to learn the principles of its operation.

TEXT.—The text for the journalism classes is the newspaper, and, in course 50, a typographical handbook. Students are required to study the best papers of the country to gain from them ideas as to style and methods in the handling of news and other matter.

LECTURES.—Newspaper publishers and writers are regularly secured as lecturers before the classes in journalism. Experts in such subjects as advertising, circulation management and business management give single lectures or short lecture courses.

FRESHMAN YEAR.—English language and rhetoric courses 1 and 2 and English literature courses 10 and 11 are required as prerequisites for the technical newspaper courses in the succeeding years.

SOPHOMORE YEAR.—Journalism 1 and 2 are technical courses designed to familiarize the student with the forms of newspaper writing and to give practice in the gathering and preparation of news matter.

JUNIOR YEAR.—The courses open to Juniors are journalism 50, 51, 52, 53.

SENIOR YEAR.—The technical courses offered are 50, 51, 52 and 53. In 50 and 51 specialization is permitted in the work of the city editor, the editorial writer, the feature-story writer, the proof reader, and that of the various newspaper departments. Practice is given in directing the work of reporters and in editing "copy" for the *Kansan*.

RECOMMENDATION FOR ALL YEARS.—It is recommended that students preparing for the journalistic profession choose, each year, a considerable amount of work in some or all of the following subjects: English composition, English literature, history, economics, sociology, psychology, logic, political science, constitutional law, international law, economic and financial history, and ethics. This recommendation is made, however, with the realization that few, if any, courses in the University curriculum can be pursued without advantage by the prospective newspaper worker, whose information can hardly be too broad nor his powers too fully developed.

1.—REPORTING. Three hours, first semester, at 10:15. Lectures and daily practice in reporting. Prerequisites, English 1 and 2 and 10 and 11. Required for admission to journalism, 50 and 51, except of those who have had newspaper experience. Director Harger and Assistant Professor Flint.

2.—REPORTING. Three hours, second semester, at 10:15. A continuation of journalism 1. Director Harger and Assistant Professor Flint.

50.—EDITING. Two hours, first semester, at 10:15. A study of all departments of newspaper work, with practice in reporting and editing, editorial writing, feature-story writing, and proof reading. Practical experience in connection with local and other newspapers. One or more subjects may be chosen for special attention. Prerequisites, courses 1 and 2 or equivalent newspaper experience. Director Harger and Assistant Professor Flint.

51.—EDITING.—Two hours, second semester, at 10:15. A continuation of course 50, with special study of some department of newspaper making, and preparation of a thesis. Director Harger and Assistant Professor Flint.

52.—HISTORY OF JOURNALISM. One hour, first semester, Wednesday, at 11:15. Studies of great journalists, the development of the press in Europe and America, and the modern newspaper in all countries, with theses. Director Harger.

53.—ADVERTISING. One hour, second semester, Wednesday, at 11:15. A study of the principles of advertising, with practice in the writing of advertisements. Weekly lectures by professional advertisement writers and those having practical experience as advertising solicitors and managers. Assistant Professor Flint.

### LATIN LANGUAGE AND LITERATURE.

Professor WALKER.  
Associate Professor OLIVER.  
Assistant Professor MURRAY.  
Mr. CRESSMAN, Fellow.

EQUIPMENT.—The department is well supplied with wall maps, books of reference and supplementary reading for all courses, photographs, and a large collection of antiquities illustrating many phases of Roman life. For a more complete statement as to equipment, see the statement of the Latin courses offered in the Graduate School.

ADVICE AS TO CHOICE OF COURSES.—Those who intend to take only five hours of Latin to satisfy a group requirement must take course 3 if they have entered with only three units of Latin. If they have entered with four units, they may select any five hours out of courses 4, 5, and 6. Those who wish to secure either a recommendation as teacher of Latin or a teacher's diploma in Latin must elect at least twenty-five hours in the department of Latin beyond course 3; courses 4 and 12 must be included. Other courses especially recommended to those who intend to teach are 6, 8, 9, 11, 50, 57, 58, 59, Education 87, and the course



in ancient history given by the department of European history. Those who wish to do the best work in Latin will need, in addition to a greater amount of Latin, some Greek and a reading knowledge of German.

**BEGINNERS' LATIN AND CÆSAR.**—Classes in these subjects are organized at the beginning of the College year for the benefit of students who are conditioned in Latin. Such students may, therefore, obtain free of charge the instruction for which they would otherwise be obliged to pay a tutor. College credit is not given. These classes are taught by the advanced students of the department who are taking the teachers' course in Latin. Each class meets three hours a week during the first term, and either two or three during the second. The hour of meeting is arranged after the class is organized. The probable hour for each class is 3:30.

1.—**CICERO'S ORATIONS I.** Three hours, first semester, at 8. The four orations against Catiline, and exercises in prose composition. This course, with or without the following course, may be taken for College credit by students who enter with Cæsar and Vergil, or with German and two units of Latin. Both this course and the following are required of those who enter with only two units of Latin. Students who make up an entrance condition in Cicero under any private tutor will be examined by the department in both translation and composition. Assistant Professor Murray.

2.—**CICERO'S ORATIONS II.** Two hours, second semester, at 11:15. The orations for the Manilian Law and the Poet Archias, and exercises in prose composition. Must be preceded by course 1. Associate Professor Oliver.

3.—**VERGIL'S ÆNEID** (six books). Five hours, first semester, at 11:15; and second semester, at 9. With the study of mythology and careful practice in metrical reading. The chief stress will be laid on the literary side of the work. Open only to those who enter with three years of Latin and without Vergil. Associate Professor Oliver.

4.—**CICERO (De Senectute).** Three hours, first semester, at 9 and 11:15; and second semester, at 8. With prose composition and a thorough review of the grammar. Open to those who have had four units of Latin, recommended to all who expect to take further courses in Latin, and required of all who expect to prepare for teaching Latin: First semester, at 9, Associate Professor Oliver; at 11:15, Assistant Professor Murray. Second semester, at 8, Assistant Professor Murray.

5.—**LIVY** (one book). Two hours, first semester, at 9 and 11:15; and second semester, at 8. This course is intended to accompany course 4, but may be omitted by well-prepared stu-

dents. First semester, at 9, Associate Professor Oliver; at 11:15, Assistant Professor Murray. Second semester, Assistant Professor Murray.

6.—HORACE (Odes). Three hours, first semester, at 9; and second semester, at 11:15. With careful practice in metrical reading. The chief stress is laid on the literary side of the work. First semester, Assistant Professor Murray; second semester, Associate Professor Oliver.

7.—TERENCE (two plays). Two hours, second semester, at 11:15. Must be preceded by course 4. Intended to accompany course 6. Those who must choose between 6 and 7 are advised to take 6. Those who elect it when qualified to elect course 51 will be required to read an additional play. Professor Walker.

8.—CICERO'S LETTERS. Three hours, first semester, at 10:15. The chief stress is laid on the historical points involved, so that the student gets a good knowledge of the period in which Cæsar and Cicero lived. Must be preceded by five hours beyond course 3. Professor Walker.

9.—HISTORY OF ROMAN LITERATURE. Two hours, first semester, at 10:15. Mackail's Latin Literature, supplemented by lectures and assigned reading in English translations of the more important authors. Open to all undergraduates except Freshmen, without regard to their Latin preparation. Associate Professor Oliver.

10.—HORACE (Satires and Epistles). Two hours, second semester, at 10:15. Must be preceded by eight hours beyond course 3. Assistant Professor Murray.

11.—ROMAN PRIVATE LIFE. One hour, second semester, Monday, at 10:15. Johnston's Private Life of the Romans, supplemented by occasional lectures and the use of illustrative material. Must be preceded by five hours beyond course 3. Associate Professor Oliver.

12.—PROSE COMPOSITION. Two hours, second semester, Wednesday and Friday, at 10:15. Part I or part II of Nutting's Advanced Latin Composition. Intended to accompany courses 10 and 11, but may be taken earlier by well-prepared students, the only necessary preparation being given in course 4. Required of all who wish a recommendation from the department as teachers of Latin. Professor Walker.

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50.—ADVANCED PROSE COMPOSITION. Two hours, first semester, at 1:30. Must be preceded by course 12. Professor Walker.

51.—PLAUTUS. Two hours. (Not given in 1911-'12.) Must be preceded by twelve hours beyond course 3.

52.—VERGIL'S ECLOGUES AND GEORGICS. Two hours, second semester, at 10:15. A reading course, open to Juniors, Seniors, and graduates. Must be preceded by twelve hours beyond course 3. Associate Professor Oliver.

53.—LUCRETIUS. Three hours. (Not given in 1911-'12.) Must be preceded by twelve hours beyond course 3.

54.—THE ANNALS OF TACITUS. Three hours. (Not given in 1911-'12.) Must be preceded by twelve hours beyond course 3.

55.—JUVENAL. Three hours, second semester, at 9. Must be preceded by twelve hours beyond course 3. Assistant Professor Murray.

56.—LITERATURE OF THE EMPIRE. Three hours, first semester, at 1:30. A study of the history of literature under the empire, supplemented by the reading of portions of the most important works. Must be preceded by twelve hours beyond course 3. Associate Professor Oliver.

57.—ROMAN POLITICAL INSTITUTIONS. Three hours, first semester, at 10:15. A study of the development and form of the Roman governmental system through the republic and the early empire. The course will be conducted by lectures and assigned readings. Prerequisite, three years of preparatory Latin. Assistant Professor Murray.

58.—CÆSAR'S GALLIC CAMPAIGNS. Three hours, second semester, at 1:30. A critical study of the Gallic war, with especial reference to military, historical, and geographical questions. The course is intended primarily as an introduction to the methods of the graduate seminar, and secondarily as a practical course for teachers. Open to Seniors. Professor Walker.

59.—VERGIL. Three hours. (Not given in 1911-'12.) A rapid survey of the contents of the *Æneid*, with a study of the motives of the poem and of Vergil's method of handling his material. A critical study of a few passages which involve difficulties of interpretation or of textual criticism. It is recommended that this course be preceded or accompanied by course 52. Open to Seniors.

## LAW.

The following courses in the School of Law are open to College Seniors, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Law as well as in the College and will be admitted to the classes as first-year law students.

51.—ELEMENTARY LAW.—Two and one-half hours, first half of first semester, daily, at 11:15. Associate Professor Humble.

52.—AGENCY. Two and one-half hours, second half of first semester, daily, at 10:15. Associate Professor Humble.

53.—CONTRACTS. Five hours, first semester, at 9. Professor Green.

54.—BAILMENTS. Two and one-half hours, first half of second semester, daily, at 11:15. Associate Professor Humble.

55.—TORTS. Two and one-half hours; *a*, second half of first semester, two hours, at 11:15; *b*, three hours, at 9. Professor Hill.

56.—SALES. Two and one-half hours, first half of second semester, daily, at 10:15. Professor Burdick.

57.—DAMAGES. Two and one-half hours, second half of second semester, daily, at 10:15. Associate Professor Humble.

58.—DOMESTIC RELATIONS. Two and one-half hours, second half of second semester, daily, at 11:15. Professor Burdick.

59.—CRIMINAL LAW. Two and one-half hours, first half of first semester, daily, at 10:15. Professor Burdick.

60.—SURETYSHIP. Two and one-half hours, second half of second semester, daily, at 9. Associate Professor Humble.

### MATHEMATICS.

Professor YOUNG.

Associate Professor VAN DER VRIES.

Associate Professor ASHTON.

Assistant Professor MITCHELL.

Assistant Professor PITCHER.

Assistant Professor WHITE.

Mr. FRIZELL, Instructor.

Mr. HESS, Instructor.

Miss MACGREGOR, Fellow.

EQUIPMENT.—The department of mathematics has a good collection of models in wood, plaster of Paris, and strings illustrating various theorems of geometry and analysis. The library contains about 2000 volumes relating to mathematics. The department also has in its possession a large collection of elementary textbooks, known as the Newson Collection (a gift by Mrs. H. B. Newson from the library of the late Professor Newson), which is of especial value to the prospective teachers, affording an excellent opportunity for comparing various methods of presentation.

ADVICE AS TO CHOICE OF COURSES.—The courses in the department are arranged to meet the needs of four classes of students, as follows: (1) Those who wish to study mathematics for general culture; (2) those who wish to become teachers of mathematics in secondary schools; (3) those who wish to take mathematics in preparation for advanced work in other departments; (4) those who wish to specialize with a view to finding a



career in teaching and research in mathematics. The courses are arranged in three groups: The elementary group, open to all undergraduates; a more advanced group, open to Juniors, Seniors and graduate students; and the graduate courses, open only to graduate students. (For a list of the latter courses see the announcements of the Graduate School.) A short major (thirty hours) should include courses 2 to 8 and thirteen hours chosen from the remaining courses open to undergraduates; a long major (forty hours) should consist of courses 2 to 8 and twenty-three hours from the remaining courses open to undergraduates.

(1) For general culture all or a part of courses 2 to 9 in proper sequence are recommended; they may be taken two at a time (*i. e.*, 2 and 3, 4 and 5, etc.).

(2) Those wishing to qualify for teachers of mathematics in high schools should complete courses 2 to 9 (twenty hours) and at least ten hours in physics, astronomy, the history and pedagogy of mathematics, and practice teaching in the School of Education.

(3) Students whose major work is in another department where mathematics is needed should consult with the head of the department in question regarding the mathematical courses he should elect.

(4) Students desiring to specialize in mathematics should take courses 2 to 9 and then consult with the head of the department as to selection of additional courses. Such students are advised to gain a reading knowledge of French and German as early in their course as possible. Usually for this purpose French 1 and 2 and German 1-4 are sufficient; Italian 1 and 2 will also be a great help.

In all cases students should consult with the instructors in the department before electing the advanced courses.

2.—COLLEGE ALGEBRA. Three hours, both semesters—first semester, at 8, 9, 10:15, 11:15, and 2:30; second semester, at 8, 9, and 2:30. Rapid review of elementary algebra; graphic representation; logarithms; determinants; theory of equations; Horner's method of approximation. Assistant Professor Pitcher and assistants.

3.—PLANE TRIGONOMETRY. Two hours, both semesters—first semester, at 8, 9, 10:15, 11:15, and 2:30; second semester, at 8, 9, and 2:30. The six trigonometric functions; principal formulas of plane trigonometry, trigonometric equations, solution of triangles and practical problems. Assistant Professor Mitchell and assistants.

4.—ANALYTICAL GEOMETRY I. Two hours, both semesters—first semester, at 8 and 11:15; second semester, at 8, 9, and 2:30. The straight line, circle, elements of parabola, ellipse and hyper-

bola. Prerequisites, courses 2 and 3. Assistant Professor White and assistants.

5.—CALCULUS I. Three hours, both semesters—first semester, at 10:15 and 11:15; second semester, at 8, 9, and 2:30. Differential calculus; fundamental principles; derivatives; applications to geometry and mechanics; maxima and minima; indeterminates. Open to students who have completed or are taking course 4. Assistant Professor White and assistants.

6.—ANALYTICAL GEOMETRY II. Two hours, both semesters—first semester, at 11:15; second semester, at 10:15. Conic sections; polar coördinates; loci problems; higher plane curves. Prerequisite, course 4. Associate Professor Ashton and assistants.

7.—CALCULUS II. Three hours, both semesters—first semester, at 11:15; second semester, at 10:15. Integral calculus; integration; definite integrals; applications to lengths, areas, and volumes. Prerequisite, courses 5 and 6; may be taken at the same time with course 6. Associate Professor Ashton and assistants.

8.—CALCULUS III. Two hours, second semester, at 11:15. Applications of the calculus to curves and surfaces; series, partial differentiation and integration; and a thorough training in the use of the definite integral as the limit of a sum. Prerequisite, course 7. Assistant Professor White.

9.—MODERN GEOMETRY. Three hours, second semester, at 9. Homogeneous coördinates; principle of duality; point, line, and plane coördinates; reciprocal polars; projection. Prerequisite, courses 2 to 7. Associate Professor Van der Vries.

10.—ANALYTIC MECHANICS. Three hours, first semester, at 10:15. This course is recommended to those who desire a more thorough knowledge of the integral calculus and its practical applications. It will include center of gravity, moments of inertia, and the general theory of rectilinear and curvilinear motion in space. A large number of practical problems will be solved. Prerequisite, courses 2 to 8. Associate Professor Ashton.

11.—DIFFERENTIAL EQUATIONS. Three hours, second semester, at 10:15. Ordinary differential equations; integration in series; partial differential equations; applications to geometry and physics. Prerequisite, courses 2 to 8. Associate Professor Van der Vries.

12.—ADVANCED CALCULUS I. Two hours, first semester, at 11:15. Elliptic integrals; Jacobian elliptic functions; applications to geometry and physics. Prerequisite, courses 2 to 8. Assistant Professor Pitcher.

53.—ADVANCED CALCULUS II. Three hours, second semester, at 11:15. Critical review of the fundamental notions of calculus; expansion in series; definite integrals; multiple integrals; line, surface and space integrals; functions defined by definite integrals; applications to geometry and physics. Prerequisite, courses 2 to 8. Professor Young.

54.—SOLID ANALYTICAL GEOMETRY. Two hours, first semester, at 11:15. Solid analytical geometry of the straight line, plane, and the conicoids. Prerequisite, course 7. Assistant Professor White.

55.—HIGHER ALGEBRA I. Three hours, first semester, at 9. A study of selected topics in Fine's College Algebra. The idea of a number field; the development of the number system of algebra; definition of irrational number; fundamental theorems on limits; convergence of infinite series; power series; operations with infinite series; binomial, exponential and logarithmic series; infinite products; solution of cubic and biquadratic equations; theory of equations; Taylor's theorem for polynomials; test for multiple roots. Prerequisite, courses 2 to 7. Assistant Professor Mitchell.

56.—HIGHER ALGEBRA II. Two hours, second semester, at 9. Selected topics in Bocher's Introduction to Higher Algebra. Fundamental properties of polynomials; properties of determinants; theory of linear dependence; systems of linear equations; linear transformations; multiplication of matrices; bilinear forms; properties of polynomials in general. Prerequisite, courses 2 to 7. Assistant Professor Mitchell.

57.—COMPLEX NUMBERS. Two hours, second semester, at 10:15. Analytic and geometric properties of complex numbers; conditions of functionality; integration; circular transformations; applications. Prerequisite, course 55. Associate Professor Ashton.

58.—THEORY OF NUMBERS. Two hours, second semester, at 11:15. Introduction to the classical theory. Congruences, Fermat's theorems, quadratic residues, quadratic binary forms. Prerequisite, course 56. (Not offered in 1911-'12.)

60.—PROJECTIVE GEOMETRY. Three hours, throughout the year, at 9. The logical foundations of projective geometry; principle of duality; projective transformations in one-, two- and three-dimensional forms; conic sections; introduction of analytic methods on a synthetic basis. The general projective group and its important subgroups. Prerequisite, course 9. Professor Young.

65.—FOURIER'S SERIES. Two hours, through the year, at 10:15. Development of functions in Fourier's series, with ap-

plications to the solution of problems in physics. Introduction to spherical harmonics. The potential function. Prerequisite, courses 50, 51, 55. (Not offered in 1911-'12.)

### MEDICINE.

The College student who has completed the Sophomore year and desires to secure the degrees of bachelor of arts and doctor of medicine can complete the first and second years of the medical curriculum and finish the College course at the same time. To do this he must register in both the College and the School of Medicine and select from the curriculum of the School of Medicine those courses which are offered by the various departments of the College. These courses, common to both schools, aggregate thirty-five hours. He will also be admitted to medical courses, not given by the College, aggregating twenty-five hours. Having thus secured credit for sixty hours, he will be entitled to the degree of bachelor of arts.

The following courses given in the School of Medicine are open to College Juniors and Seniors with the approval of the Dean of the College:

51.—DESCRIPTIVE ANATOMY. Seven hours, first semester, daily, 8 to 12:15. Professor Sudler.

52.—DESCRIPTIVE ANATOMY. Eight hours, second semester, daily, 8 to 12:15. Professor Sudler.

52.—GENERAL PATHOLOGY. Five hours, daily, second semester, 1:30 to 3:30. Professor Barber.

52.—MATERIA MEDICA. Five hours, daily, second semester, at 11:15. Professor Sayre.

### MINERALOGY. (See Geology.)

### MUSIC.

The following courses are open to College students who are prepared to enter them. College students desiring to enter courses 52 to 55 must also register in the School of Fine Arts, and then they will be admitted to the courses in the same manner as Fine Arts students.

50.—MUSICAL APPRECIATION. Two hours, first semester, at 10:15. A course for those who wish to learn to understand music as listeners, without necessarily being performers. The different styles of music are explained and illustrated, with special reference to the University concerts. Professor Skilton.

51.—DEVELOPMENT OF MUSIC. Two hours, second semester, at 10:15. Detailed examination of famous composers, with reference to the history of their time and country. Professor Skilton.



52.—HARMONY. Two hours, first semester, at 2. The study of overtones, scales, intervals; the formation and connection of triads and seventh chords with their inversions; close and open harmony; the harmonization of melodies in soprano or bass and of original melodies. Practical work at the piano. Chadwick's Harmony used. Professor Skilton.

53.—HARMONY. Two hours, second semester, at 2. Continuation of course 52. Professor Skilton.

54.—HARMONY. Two hours, first semester, Tuesday and Friday at 3. The study of modulations, altered chords, and irregular progressions. Practical work at the piano and original composition. Chadwick's Harmony used. Prerequisites, courses 52 and 53. Professor Skilton.

55.—HARMONY. Two hours, second semester, Tuesday and Friday, at 3. The inharmonic material of music. Review of harmony. Composition. Prerequisites, courses 52 to 54. Professor Skilton.

For other courses in music, see School of Fine Arts.

### PHARMACY.

Professor SAYRE.  
Assistant Professor EMERSON.

For equipment, see under School of Pharmacy.

50.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. For College and medical students. Products of physiological interest are separated from animal tissues and organs and studied in detail. The study of fats, carbohydrates, proteins, and the normal and abnormal products of animal life. Five weeks of urinalysis, embracing lectures, recitations, and laboratory work. Professor Sayre and Assistant Professor Emerson.

51.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Analysis of dietetics used in medicine, quantitative valuation of proximate constituents of foods, assay of digestive ferments, and the separation of organic principles of animal tissues, etc. Professor Sayre and Assistant Professor Emerson.

### PHILOSOPHY.

Professor TEMPLIN.  
Professor BOODIN.  
Assistant Professor ROGERS.  
Mr. DOCKERAY.  
Mr. CAMPBELL.  
Mr. SHEA, Fellow.

EQUIPMENT.—The philosophical library contains about 2700 volumes, including complete sets of the leading philosophical and psychological periodicals published in the English, German and

French languages. These are all available for students working in the department, and are kept in a special departmental reading room in the Library Building.

The psychological laboratory is equipped both for class work and original research.

1.—ELEMENTS OF PSYCHOLOGY.\* Three hours, both semesters, at 8, 9, and 10:15. A general study of mental processes. This course is a prerequisite to all other courses in the department, but it may be taken at the same time with courses 2, 3, or 4. Assistant Professor Rogers, Mr. Campbell, Mr. Dockeray.

2.—LABORATORY PSYCHOLOGY.\* Two hours, both semesters, at 8 to 10, 10:15 to 12:15, and 1:30 to 3:30. Laboratory experiments analyzing and illustrating mental processes. Lectures, assigned readings, and reports. Must be preceded or accompanied by course 1. Prerequisite to courses 50, 51, 52, and 53. Assistant Professor Rogers.

3.—ELEMENTARY LOGIC.\* Two hours, first semester, at 10:15 and 11:15. A traditional treatment of the syllogism and induction, with emphasis on the latter. Must be preceded or accompanied by course 1. Mr. Campbell.

4.—INTRODUCTION TO PHILOSOPHY.\* Two hours, both semesters, at 9 and 10:15. A brief presentation of some of the main problems of philosophy as illustrations of the philosophical attitude toward belief and conduct. Should be preceded by elementary courses in the biological and physical sciences. Must be preceded or accompanied by course 1. Assistant Professor Rogers.

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50.—SENSATION AND PERCEPTION. Three hours, first semester, in alternate years; given in 1911-'12, 1:30 to 3:30. A more detailed study than is possible in courses 1 and 2, of the processes of sensation and perception. Experiments, lectures, assigned readings, and reports. Must be preceded by courses 1 and 2 (or 1 and physiology 5). Assistant Professor Rogers.

51.—PSYCHOLOGY OF THOUGHT. Three hours, second semester, in alternate years; given in 1911-'12, 1:30 to 3:30. A study of the processes of attention, association, imagination, memory, conception, reasoning, and belief. Experiments, lectures, assigned readings, and reports. Must be preceded by courses 1 and 2. Assistant Professor Rogers.

52.—FEELING AND WILL. Three hours, first semester, in alternate years; given in 1912-'13, 1:30 to 3:30. A study of the processes of reaction, practice, instinct, feeling, emotion, effort, fatigue, and volition. Experiments, lectures, assigned readings,

and reports. Must be preceded by courses 1 and 2. Assistant Professor Rogers.

53.—COMPARATIVE PSYCHOLOGY. Three hours, second semester, in alternate years; given in 1910-'11, 1:30 to 3:30. Animal psychology, child psychology, race psychology, individual differences, abnormal psychology. Experiments, lectures, assigned readings, and reports. Must be preceded by courses 1 and 2. Assistant Professor Rogers.

54.—SOCIAL PSYCHOLOGY. Two hours, first semester, at 9. A study of the social consciousness, especially shown in the psychology of the crowd and religion. Prerequisites, courses 1 and 2 or 4. Professor Boodin.

60.—HISTORY OF PHILOSOPHY. Three hours, first semester, at 10:15. This course outlines the principal movements or tendencies of Greek thought with special reference to Plato. Prerequisites, courses 1 and 3 or 4. Professor Boodin.

61.—HISTORY OF PHILOSOPHY. Three hours, second semester, at 10:15. A continuation of course 60, but not necessarily preceded by it, dealing with modern philosophy, with special reference to idealism. Professor Boodin.

62.—PHILOSOPHICAL CLASSICS. Two hours, first semester, at 10:15. This course furnishes an opportunity for a first-hand study of some of the more important works in the history of philosophy. The authors read vary with succeeding terms. Must be preceded or accompanied by course 60. Professor Boodin.

63.—PHILOSOPHICAL CLASSICS. Two hours, second semester, at 10:15. A continuation of course 62. Professor Boodin.

64.—THE THEORY OF KNOWLEDGE. Three hours, first semester, by appointment. This course deals with the problem of the relation of truth to reality with special reference to idealism, realism and pragmatism. Prerequisites, courses 1 and 60 or 61. Professor Boodin.

65.—METAPHYSICS. Three hours, second semester, by appointment. This course deals with some of the important tendencies in contemporary thinking. Prerequisites, courses 1 and 60 or 61. Professor Boodin.

66.—THE PHILOSOPHY OF RELIGION. Two hours, second semester, at 9. This course aims to interpret the religious consciousness, first by tracing the evolution of religion. It further takes up the modern idealistic and pragmatistic interpretation of religion. Prerequisites, courses 1 and 60 or 61. Professor Boodin.

70.—SYSTEMATIC ETHICS. Three hours, first semester, at 8. This course undertakes a critical examination into the psychological foundations of human conduct, a review of the historic

ethical theories, and the development of a satisfactory ethical system. Prerequisites, courses 1 and 4. Professor Templin.

71.—PRACTICAL ETHICS. Two hours, second semester, Monday and Wednesday, at 8. The application of theoretical principles of conduct to practical problems of life. Prerequisite, course 7. Professor Templin.

72.—ESTHETICS. Two hours, second semester, at 8. An historical and constructive treatment of the problem of the beautiful, followed by an application of esthetic principles to nature and the fine arts. Prerequisites, courses 1 and 4. Professor Templin.

### PHYSICAL EDUCATION.

Professor NAISMITH.  
Assistant Professor FISH.  
Mr. ROOT, Instructor.  
Mr. HAMILTON, Instructor.

For equipment, see under "Gymnasium."

ADVICE AS TO CHOICE OF COURSES.—Courses 50, 52 and 54 are designed for those who intend to teach this subject. Course 51 is arranged with reference to the course in domestic science.

1.\*\*—FRESHMAN. Men: First half semester, outdoor athletics, swimming; second half semester, basket ball, diving. Women: First half semester, indoor games, swimming; second half semester, calisthenics, gymnastics, marching.

2.\*\*—FRESHMEN. Men: First half semester, calisthenics, gymnastics, marching; second half semester, outdoor games, athletics and water sports. Women: First half semester, calisthenics, gymnastics and folk games; second half semester, competitive work, swimming.

3.—SOPHOMORE. Men: First half semester, outdoor athletics, rescue swimming; second half semester, basket ball and other team games. Women: First half semester, indoor games, playground drills; second half semester, folk games, gymnastics and basket ball.

4.—SOPHOMORE. Men: First half semester, defensive sports; second half semester, squad leading, coaching, aquatic sports. Women: First half semester, gymnastics, fancy marches; second half semester, fencing, team games, rescue swimming.

Those physically qualified may elect the following in their season, in place of the foregoing: Football, baseball, tennis, basket ball, track and field athletics, hockey, and lacrosse. This work must be under the appointed coach or leader, in order to obtain credit.

Additional courses will be arranged for special work and prescribed work which cannot be done in class.



Every student may receive a thorough medical and physical examination, with the results platted on a chart. Where needed, special exercises will be prescribed.

Every student using the gymnasium or who is a candidate for any University team must pass a satisfactory medical and physical examination.

5.—HYGIENE.\*\* One hour, first semester, men, Monday; women, Thursday. Lectures designed to help the students to maintain health, dealing with food, clothing, exercise, conditions conducive to study, prophylactic treatment, especially in regard to infectious and contagious diseases. Required of Freshmen.

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50.—MECHANICAL ANATOMY. Three hours, first semester, 8 to 10. The study of the bones, articulation and muscles in their relations as mechanical principles. The location of the viscera. The distribution of the principal nerves and blood vessels, and the topography of the muscles. Professor Naismith.

51.—PHYSICAL EDUCATION OF CHILDREN. Three hours, second semester, at 8. Including the growth of the child and conditions that affect its development; effect of physical, mental and emotional strain. Relation of physical condition to the development of character and mental ability; methods of obtaining the best results. Belongs to the domestic-science group and limited to women. Professor Naismith.

52.—ANTHROPOMETRY. Two hours, second semester, at 9. Medical, physical and functional examinations; tabulation and use of the data of examinations. Professor Naismith.

54.—PHYSICAL EDUCATION. Three hours, second semester, at 9. Laboratory periods by appointment. Dealing with the effects of exercise on the various systems of the body; history of the subject; prescription of exercise, and mechanical therapeutics. Professor Naismith.

## PHYSICS AND ASTRONOMY.

Professor KESTER.

Associate Professor M. E. RICE.

Assistant Professor STIMPSON.

Mr. T. T. SMITH, Instructor.

EQUIPMENT.—The department occupies most of Blake Hall. There are two lecture rooms, two classrooms, three large laboratory rooms and seven smaller ones, besides offices, library and reading room and an instrument repair shop. The lecture and laboratory rooms are supplied with water, gas, and electric circuits furnishing both direct and alternating current for experiments, and the basement laboratory rooms are supplied with stone piers, giving instrument supports free from vibrations.

The apparatus is sufficient to show in lectures all the experiments usually given in undergraduate courses in physics and to enable the students to perform in the laboratories most of the experiments described in laboratory manuals of college physics. For advanced work, the equipment includes a number of pieces of fine apparatus in light and electricity; and an instrument maker is available for making special apparatus according to the requirements of the problem in hand. The department library contains many of the best English, German and French periodicals, with bound volumes for twenty to thirty-five years. These include the *American Journal of Science*, *Annalen der Physik*, *Beiblaetter zu den Annalen der Physik*, *Journal de Physique*, *Philosophical Magazine*, *Philosophical Transactions and Proceedings of the Royal Society*, *Physical Review*, *Physikalische Zeitschrift*, *Science Abstracts*, *Zeitschrift für Instrumentenkunde*, *Zeitschrift für Physikalische und Chemische Unterricht*. The library also contains a good number of standard treatises, both elementary and advanced, as well as the collected papers of Maxwell, Faraday, Kelvin, Stokes, Rowland, Gibbs and others.

The material equipment in astronomy consists of a six-inch astronomical telescope made by A. Clark & Sons, on a portable equatorial tripod mounting; a two-inch terrestrial telescope on a portable altazimuth mounting; a two-inch transit instrument; a sextant; a spectroscope for attachment to the six-inch telescope; a chronometer; a twenty-inch celestial globe; 600 astronomical slides; star charts, atlases, maps, drawings, etc. In addition, the equipment in physics is available for demonstrations and laboratory work.

The library contains some 600 volumes, including some of the more important astronomical journals.

### PHYSICS.

1.—ELEMENTARY PHYSICS. Five hours, second semester, Monday, Wednesday, and Friday, 8 to 9, and Tuesday and Thursday, 8 to 10. A first course in physics, intended to give a brief survey of the subject. Recitations and laboratory, with some lectures and problems. Prerequisites, algebra and plane geometry. Not open for credit to students having credit in entrance physics. Assistant Professor Stimpson.

5a.—GENERAL PHYSICS I. Mechanics and heat. Three hours, second semester, Monday, Wednesday, and Friday, at 3:30. Lectures, recitations and problems. Prerequisites, a first course in physics and some knowledge of plane trigonometry. Course 5a should be accompanied by 5b. Professor Kester.

5b.—GENERAL PHYSICS LABORATORY I. Mechanics and heat. Two hours, second semester, Tuesday and Thursday, 3:30 to 4:30.

5:30, or Saturday, 8 to 12. Coördinate with 5a, with the same prerequisites. Course 5b must be accompanied by or preceded by 5a. Mr. Smith.

6a.—GENERAL PHYSICS II. Sound, light and electricity. Three hours, first semester, Monday, Wednesday, and Friday, at 3:30. A continuation of course 5, with the same prerequisites. It is desirable that physics 5 precede this course, though not necessary. Course 6a should be accompanied by 6b. Professor Kester.

6b.—GENERAL PHYSICS LABORATORY II. Sound, light and electricity. Two hours, Tuesday and Thursday, 3:30 to 5:30, or Saturday, 8 to 12. Coördinate with 6a, with the same prerequisites. Course 6b must be accompanied by or preceded by 6a. Mr. Smith.

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50.—MECHANICS AND HEAT. Three hours, first semester, by appointment. Lectures and recitations. Prerequisites, courses 5 and 6, or 1E and 2E, and calculus. Mr. Smith. (Not offered in 1911-'12.)

51.—LIGHT AND RADIANT ENERGY. Three hours, second semester, by appointment. A continuation of course 50, with the same prerequisites. Mr. Smith. (Not offered in 1911-'12.)

52.—ELECTRICITY. Three hours, first semester, Monday, Wednesday and Thursday, at 11:15. Lectures, recitations and problems. Prerequisites, courses 5 and 6, or 1E and 2E, and calculus. Associate Professor M. E. Rice.

53.—RADIOACTIVITY AND CONDUCTION OF ELECTRICITY THROUGH GASES. Three hours, second semester, by appointment. A continuation of course 52, with the same prerequisites. Professor Kester.

Courses 50, 51, 52 and 53 are designed to form a two-year cycle for theoretical treatment of the essentials of the subject matter of physics. The cycle is offered especially for Juniors and Seniors who are taking their major in physics. Either year of it is acceptable as a minor for graduate students who are working for the master's degree with their major in another department. An opportunity is offered in the laboratory courses 54 to 59 for experimental work which shall supplement to any desired extent the theoretical development of a given branch of the subject.

54.—PHYSICS LABORATORY. Mechanics and heat. Two to five credit hours, first semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E. Mr. T. T. Smith.

55.—PHYSICS LABORATORY. Light and radiant heat. Two to five hours, second semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E, or their equivalents. Mr. T. T. Smith.

56.—PHYSICS LABORATORY. Electricity. Two to five hours, first semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E, or their equivalents. Associate Professor M. E. Rice.

57.—PHYSICS LABORATORY. Radioactivity and conduction of electricity through gases. Two to five hours, second semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E, or their equivalents. Professor Kester.

Courses 54, 55, 56, 57 are coördinate with 50, 51, 52, 53, with the same prerequisites, and supplement them from an experimental point of view.

58.—ADVANCED LABORATORY I. Two to five credit hours, first semester, by appointment. A continuation of courses 54 to 57; requires at least two semesters' credits in these courses. The development is supposed to make possible, during the year, a repetition of some of the classical researches in physics. Professor Kester and Associate Professor M. E. Rice.

59.—ADVANCED LABORATORY II. Two to five credit hours, second semester, by appointment. A continuation of course 58. Professor Kester and Associate Professor M. E. Rice.

60.—OPTICAL INSTRUMENTS. Three hours, first semester, by appointment. The course is so designed as to pay special attention to the resolving power of optical instruments in general and to give an introduction to the science of spectroscopy. Associate Professor M. E. Rice.

61.—RECENT ADVANCES IN PHYSICS I. One hour, first semester, by appointment. A treatment, wherever possible in the form of experimental demonstration, of late developments in the science, such as do not receive treatment regularly in courses and in textbooks.

62.—RECENT ADVANCES IN PHYSICS II. One hour, second semester, by appointment. Continuation of course 57.

63.—PHYSICS COLLOQUIUM I. One hour, first semester, by appointment. The members and the advanced students of the department meet once a week to report on researches published in the journals of the science and on the progress of original investigations carried on by members of the colloquium.

64.—PHYSICS COLLOQUIUM II. One hour, second semester, by appointment. A continuation of course 63.

#### *Astronomy.*

50.—DESCRIPTIVE ASTRONOMY.\* Three hours, first term, at 9. Lectures and recitations, with occasional evenings for observation. Associate Professor M. E. Rice.

51.—SPHERICAL AND PRACTICAL ASTRONOMY. Three hours, second term, at 9. Coördinates on the celestial sphere. Theory of instruments. Use of small or portable instruments in determining time, latitude and longitude, and in other elementary observations. Prerequisites, spherical trigonometry (which may be taken simultaneously with this course) and elementary physics. Associate Professor M. E. Rice.



## PHYSIOLOGY.

Professor HYDE.  
Miss WALLING, Instructor.  
Mr. BURKETT, Fellow.

EQUIPMENT.—The physiology department is thoroughly equipped with approved modern apparatus for demonstration and experimental work. Besides a large lecture room, it possesses a department library for the use of the students, and a large laboratory that contains tables particularly designed for experimental work. The research room is fitted up with necessary tables, instruments and electrical apparatus for any kind of physiological experiments.

ADVICE AS TO CHOICE OF COURSES.—Course 1 is recommended especially to general students. Course 2 is for advanced work.

1.—ELEMENTARY PHYSIOLOGY. Five hours, both semesters, three days at 1:30, and two days from 1:30 to 3:30. The first half is a general elementary course in physiology, devoted to a study of the structure and functions of the human body, by means of lectures, demonstrations, recitations, and laboratory experiments. The second half consists in the study of the elements of hygiene and sanitation. Elementary Chemistry is required. Professor Hyde and Miss Walling.

2.—GENERAL PHYSIOLOGY.\* Five hours, second semester, three days at 1:30, and two days from 1:30 to 3:30. Lectures, demonstrations, recitations, and laboratory experiments. A general course in physiology designed for those who intend to teach or to specialize in the sciences. Prerequisite, course 1 or an equivalent. Professor Hyde and Miss Walling.

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50.—EXPERIMENTAL PHYSIOLOGY. Five hours, either semester or both, by appointment. Investigation of special subjects. Prerequisites, courses 1 and 2. Professor Hyde.

51.—ADVANCED EXPERIMENTAL PHYSIOLOGY. Five hours, either semester or both, by appointment. Experimental physiology and original research. Professor Hyde.

52.—PHYSIOLOGY. Five hours, first semester. 8 to 12:15. Recitations and lectures with demonstrations, conferences and laboratory experimental work. Required of second year medical students. Professor Hyde.

53.—PHYSIOLOGY. Five hours, second semester. 8 to 11:15. A continuation of course 52. Required of second year medical students. Professor Hyde.

PSYCHOLOGY. (See Philosophy.)

## PUBLIC SPEAKING AND DEBATE.

Assistant Professor GESELL.

**EQUIPMENT.**—The special equipment of this department includes a collection of more than 200 books, to which carefully selected modern works dealing with debating the public addresses are added yearly. A room in Fraser Hall is specially fitted up for the work in public speaking, and the University chapel and other rooms are available for class recitations and individual practice. Moreover, the students in the department are required to make constant use of books in the English, history and political science, economics and sociology, education, and other collections, as well as of the various current periodicals.

**ADVICE AS TO CHOICE OF COURSES.**—The courses here offered are carefully articulated units and are so arranged as to make possible a systematic study of public speaking during the Sophomore, Junior and Senior years. The work of the Sophomore year is given over to the composition of public addresses, for the principle of instruction is that right speaking depends upon right thinking. Attention is first given, therefore, to securing good mental action rather than the technique of delivery.

Students fitting themselves for the law or the ministry, for politics or social service, are urged to elect the entire series of courses offered. The University of Kansas participates in debates with the universities of Oklahoma, Colorado and Missouri. For these contests, the courses in public speaking are designed to give preparation. Men desiring to make intercollegiate debates are advised to consider courses 1, 52 and 53.

Courses 1 and 2 are fundamental and should precede the advanced work of the Junior and Senior years. Course 1 is a requisite for courses 52 and 53. Course 2 should precede courses 50, 51 and 54.

All students in the department are advised to join one of the literary societies of the University and to take part when possible in University debating contests. Members of University debating teams who enroll in course 53 may substitute their team work for part of the required class exercises.

**1.—THE PRINCIPLES OF ARGUMENTATION.** Three hours, first semester, at 8. This course is fundamental in public speaking and is recommended to Sophomores. Training is given in analysis, brief-drawing, evidence, refutation, and persuasion. Prerequisites, courses 1 and 2 in rhetoric.

**2.—THE COMPOSITION OF PUBLIC ADDRESSES.** Three hours, second semester, at 8. This course is a continuation of course 1 and gives training in choosing subjects, gathering material and formulating plans. The forms covered are the commemorative ad-

dresses, eulogy, after-dinner speech, legislative address and one oration. This course is fundamental and should precede the courses in delivery. Assistant Professor Gesell.

50.—PRACTICAL PUBLIC SPEAKING. Two hours, first semester, Monday and Wednesday, at 9 and Tuesday and Thursday at 9, also individual conferences at hours to be arranged. Planned to meet the demands of the lawyer, minister, teacher and others who meet through the medium of speech. Daily practice in the presentation of the various forms of public address, analysis, gesture, bearing and effective presentation. Assistant Professor Gesell.

51.—EXTEMPORE SPEAKING. Two hours, second semester, Monday and Wednesday, at 9 and Tuesday and Thursday at 9. Weekly addresses based upon prepared outlines. Topics are assigned in the field of American history, politics and current events. Careful preparation of material is required; the plan of the speech is made in advance, but the choice of language is left for the moment of speaking. Assistant Professor Gesell.

52.—DEBATING. Two hours, first semester, at 8. Practical work in brief-drawing, the handling of evidence and debating. This course is based on course 1 but is especially concerned with the presentation of the argument. The class is limited in number and can be taken only with the consent of the instructor. Assistant Professor Gesell.

53.—DEBATING. Two hours, second semester, at 8. This course is a continuation of course 52 and is open only to members of the University debating squad. Assistant Professor Gesell.

## ROMANCE LANGUAGES AND LITERATURES.

Professor GALLOO.

Assistant Professor NEUEN SCHWANDER.

Assistant Professor OWEN.

Assistant Professor WARD.

Mr. WINTER, Instructor.

Miss GARDNER, Instructor.

Miss ENKE, Instructor.

Miss STANTON, Instructor.

Miss HUNT, Fellow.

EQUIPMENT.—The department of Romance languages and literatures possesses a collection of illustrative material consisting of several hundred photographs, stereopticon slides, maps, plans, plaster casts, etc., representing historical features of French life, in costume, architecture, etc., as well as persons, places and things that have a closer and more definite relation to literature or to special literary work. The library of this department contains 3534 volumes, and receives thirteen French, two Spanish, and one Italian periodical.

*French.*

ADVICE AS TO CHOICE OF COURSES.—The first five courses must be taken in the order indicated below.

Of the following courses, 6-11, students are required to elect at least three (which must include 9 and a composition course) before they can be admitted to any of the advanced courses.

The literature courses should, as far as possible, be taken in the catalogue order. It is recommended that they be accompanied by corresponding courses in mediæval or modern European history.

In order to take up the study of the historical development of any of the Romance languages, it is essential that students be well grounded in Latin. They should also have a reading knowledge of German.

Graduate work in this department presupposes acquaintance with elementary Spanish and Italian.

The head of the department will, on application, outline a course for students intending to specialize in, or teach, French.

1.—ELEMENTARY FRENCH I. Five hours, first semester, at 8, 9, 10:15, or 1:30; also given in the second semester, at 8. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation, accidence and elementary syntax. Prerequisite, three years of Latin or three years of German. Assistant Professor Owen, Assistant Professor Ward, Mr. Winter, Miss Gardner, or Miss Stanton.

2.—ELEMENTARY FRENCH II. Five hours, second semester, at 8, 9, 10:15, or 1:30; also given in the first semester, at 8: A continuation of course 1. Reading of simple prose texts, with exercises in dictation and elementary composition. Assistant Professor Owen, Assistant Professor Ward, Mr. Winter, Miss Gardner, or Miss Stanton.

3.—MODERN FRENCH PROSE. Three hours, both semesters—first semester, at 9; second semester, at 8. Translation and reading some works of Mérimée, George Sand, Anatole France, and René Bazin. Assistant Professor Owen, Assistant Professor Ward, or Miss Stanton.

4.—COMPOSITION. Two hours, both semesters—first semester, at 9; second semester, at 8. Written exercises intended chiefly as a grammatical review. Oral exercises. Dictation. May be taken in conjunction with course 3 or course 5. Assistant Professor Ward, or Mr. Winter.

5.—FRENCH PROSE AND POETRY. Three hours, both semesters, at 11:15. Reading of representative works of the seventeenth, eighteenth and nineteenth centuries. Miss Gardner, or Miss Stanton.

6.—COMPOSITION. Two hours, second semester, at 11:15. A



continuation of course 4, intended to provide additional practice in writing and speaking French. Miss Gardner, or Miss Stanton.

7.—CORNEILLE AND RACINE. Two hours, second semester, at 8. Reading of four or five of the greatest tragedies of each poet. Prerequisites, courses 4 and 5. Assistant Professor Ward, or Miss Stanton.

8.—ORAL FRENCH COMPOSITION. Three hours' credit, daily, at 11:15. This course is conducted entirely in French. The idiomatic use of the spoken tongue is emphasized. Prerequisites: courses 3, 4 and 6, but students who have shown marked ability in courses 3 and 4 may omit 6. Miss Gardner and Miss Stanton.

9.—MOLIERE. Three hours, first semester, at 11:15. Careful study of the more important plays, rapid reading of the others; reports in French by members of the class. Professor Galloo.

10.—COMPOSITION, WRITTEN AND ORAL. Two hours, first semester, at 11:15. Practice in writing and speaking French. Assistant Professor Owen.

11.—ADVANCED COMPOSITION. Two hours, second semester, at 11:15. Translation, original composition, and practice in speaking French. Prerequisite, course 10. Professor Galloo.

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50.—ELEMENTARY FRENCH I. Five hours, first semester, at 10:15. Professor Galloo.

51.—ELEMENTARY FRENCH II. Five hours, second semester, at 10:15. A continuation of course 50. Professor Galloo.

52.—HISTORY OF EARLY FRENCH LITERATURE. Three hours, first semester, at 9. From the earliest times to the classical period. Lectures, recitations, and private readings. Professor Galloo.

53.—HISTORY OF MODERN FRENCH LITERATURE. Three hours, second semester, at 9. From the beginning of the classic period to the present day. Lectures, recitations, and private readings. Professor Galloo.

54.—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours, second semester, by appointment. A study of the development of French literature from the Renaissance to the end of the reign of Louis XIV. Miss Stanton.

55.—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours, second semester, by appointment. Special attention is paid to the life and works of Voltaire; study of Montesquieu, Rousseau, and the encyclopedists; the dramatists. Miss Stanton.

56.—THE ROMANTIC SCHOOL (1800-1835). Three hours, first semester, at 9. A study of the rise of romanticism in France

and of its characteristic products in poetry and the drama. Lamartine, A. de Vigny, and A. de Musset. Professor Galloo.

57.—THE ROMANTIC SCHOOL (1800-1835). Two hours, second semester, at 9. This is a continuation of course 56, and is devoted chiefly to Victor Hugo's works. Professor Galloo.

58.—DEVELOPMENT OF THE FRENCH NOVEL. Two hours, first semester, at 9. A survey of the novel in the seventeenth and eighteenth centuries. Professor Galloo.

59.—DEVELOPMENT OF THE FRENCH NOVEL. Three hours, second semester, at 9. The novel in the nineteenth century, with special reference to the origin and growth of realism and naturalism. Professor Galloo.

60.—THE FRENCH DRAMA. Three hours, second semester, at 1:30. A study of the development of the theater in France from the origin to the close of the nineteenth century. Lectures, recitations, and written reports. Miss Stanton.

61.—OLD FRENCH. Two hours, first semester, by appointment. An introduction to French philology. *Chrestomathie du moyen âge* (Paris et Langlois) or *Chrestomathie de l'ancien français* (Constans). Professor Galloo.

62.—OLD FRENCH. Two hours, second semester, by appointment. A continuation of course 59. Reading of the *Extraits de la Chanson de Roland* (Gaston Paris), with special attention to the phonetic changes and the inflections. Professor Galloo.

### *Spanish.*

1.—ELEMENTARY SPANISH I. Five hours, first semester, at 9, 11:15, or 1:30; also given in the second semester, at 2:30. An outline of grammar (Hills and Ford). Reading of short stories. Elementary composition. Prerequisite, three years of Latin or three years of German. In addition, one year of French is recommended. Mr. Winter, Miss Gardner, or Miss Enke.

2.—ELEMENTARY SPANISH II. Five hours, second semester, at 9 or 1:30; also given in first semester, at 2:30. Grammar and composition. Reading of easy modern prose: Carrión-Aza, Pérez Galdós, Palacio Valdés, etc. Mr. Winter, or Miss Enke.

3.—MODERN SPANISH. Three hours, first semester, at 1:30. Nineteenth century prose and verse: Alarcón, Caballero, Pereda, Valera, Núñez de Arce. Miss Enke.

4.—COMPOSITION. Two hours, first semester, at 2:30. Systematic practice in speaking and writing Spanish, Ramsey's Spanish Grammar (selected lessons), Harrison's Spanish Correspondence, etc. Prerequisite, course 2. Miss Enke.

5.—ORAL SPANISH COMPOSITION. Three hours' credit, daily, at 11:15. This course will be conducted entirely in Spanish.

The idiomatic use of the spoken tongue is emphasized. Prerequisites, courses 3 and 4. Assistant Professor Owen and Miss Enke.

6.—ADVANCED COMPOSITION. Two hours, second semester, at 2:30. A continuation of course 4, by which it should be preceded. It may be taken to supplement course 6. Miss Enke.

50.—ELEMENTARY SPANISH I. Five hours, first semester, at 9. Assistant Professor Owen.

51.—ELEMENTARY SPANISH II. Five hours, second semester, at 9. Assistant Professor Owen.

52.—DON QUIJOTE. Three hours, second semester, at 2:30. A careful reading of the first part, together with outside reading and reports covering the more famous chapters of the second part. Assistant Professor Owen or Miss Enke.

53.—HISTORY OF EARLY SPANISH LITERATURE. Three hours, first semester, at 1:30. From the earliest times, through the classic period. Lectures, recitations and private readings. Assistant Professor Owen.

54.—HISTORY OF MODERN SPANISH LITERATURE. Three hours, second semester, at 1:30. From the classic period to the present day. Lectures, recitations and private readings. Miss Enke.

55.—THE SPANISH NOVEL OF THE SIXTEENTH AND SEVENTEENTH CENTURIES. Two hours, first semester, by appointment. Cervantes, *Novelas ejemplares*; *Lazarillo de Tormes* and other picaresque novels. The Spain of the period. Lectures, collateral reading and reports. Assistant Professor Owen.

56.—THE CLASSIC SPANISH DRAMA. Two hours, second semester, by appointment. Tirso de Molina, Lope de Vega, Calderón, and Ruiz de Alarcón. Careful study of selected plays from each dramatist; more rapid reading of others. Schack's *Spanish Dramatic Literature*. Assistant Professor Owen.

### *Italian.*

Students are advised to take, as preparation, courses 1 and 2 in French.

1.—ELEMENTARY ITALIAN I. Three hours, first semester, at 1:30. Grammar. Reading, Marinoni's Reader. Assistant Professor Ward.

2.—ELEMENTARY ITALIAN II. Continuation of course 1. Three hours, second semester, at 1:30. Grammar, composition, and reading of modern authors. Assistant Professor Ward.

3.—GRAMMAR AND READING. Two hours, first semester, at

1:30. This course may be taken in connection with course 1. Assistant Professor Ward.

4.—WRITERS OF THE CINQUECENTO. Two hours, second semester, at 1:30. Prerequisite, course 3. Assistant Professor Ward.

50.—DANTE. Three hours, first semester, by appointment. The *Divina Commedia*; its relation to the age, and its importance in the history of the Italian language and literature. Assistant Professor Ward.

### SPANISH.

(See Romance Languages and Literatures.)

### SOCIOLOGY AND ECONOMICS.

Professor BLACKMAR.  
Associate Professor CONE.\*  
Associate Professor BOYNTON.  
Assistant Professor HELLEBERG.  
Assistant Professor HUBBARD.  
HOWARD PRESTON MILLER, Fellow.

EQUIPMENT.—Instruction in the department of sociology and economics is conducted chiefly by lectures, and reading and investigation in the library, aided in certain courses by textbooks. The University library contains about 3000 volumes relating to the courses of instruction. All of the principal magazines treating of the work of the department are on file in the reading room for the use of students. In addition, there are charts, maps, and outlines. A limited amount of investigation of social conditions is carried on.

ADVICE AS TO CHOICE OF COURSES. Courses 50, 51, 52 and 53 lay the foundation for subsequent work in sociology. They are designed to give a general knowledge of the subjects treated. Courses 54 and 55 are for advanced work, and are especially designed for those who desire to specialize in sociology.

Economics 1 is an essential foundation to subsequent courses in economics. Economics 2 and 3 lay the foundation for economics 55, 56, 57, and 58.

It is very desirable that students should consult with the instructors before choosing a group of studies in the department of sociology and economics, as there are five or more distinct lines of work, namely, sociology proper, anthropology, economic theory, economic history, and finance.

#### *Sociology.*

50.—ELEMENTS OF SOCIOLOGY. Three hours, first semester, at 1:30. This is a general course in the foundations and principles of sociology. It includes the careful survey of social ori-

\* Resigned.



gins, social evolution, social structure, social activities and social organization. It is a study of the nature of society in its concrete forms from an evolutionary standpoint, and of the operation of social forces and social laws. Much attention is given to the causes which have produced society. A concrete study of a community is required of each student. Professor Blackmar.

51.—APPLIED SOCIOLOGY. Three hours, second semester, at 1:30. In this course special attention is given to social ideals, social aims and social achievements, the conditions and modes of social progress, and the subject of conscious social activity, social environment, the causes and effects of inequalities, the equalization of opportunities and the advancement of justice; some phases of social ethics. Should be preceded by course 50. Professor Blackmar.

52.—SOCIAL PATHOLOGY. Two hours, first semester, at 1:30. A general study of poverty, pauperism, unemployment, epilepsy, insanity, degeneracy, etc., and their causes, prevention and cure. Conditions of the slums and rural populations, housing of the poor, social maladjustment, occupational diseases, etc. Assistant Professor Helleberg.

53.—REMEDIAL AND CORRECTIVE AGENCIES. Two hours, second semester, Tuesday and Thursday, at 1:30. Administration of charitable and correctional affairs; management of jails, reformatories, penitentiaries, and institutions for defectives and dependents; conditions of the slums and rural populations; housing of the poor; defects of social organization; methods of prevention of social degeneration; social sanitation. Each student is required to visit at least two social institutions and report on same. Assistant Professor Helleberg.

54.—SOCIALIZATION AND SOCIAL CONTROL. Three hours, first semester, at 2:30. This course is designed to give a thorough study in pure sociology. It has to do with social forces, social laws, and the origin and development of social control. It involves a study of aggregation, association and coöperation, as well as social inequalities and methods of overcoming their evil effects. Prerequisite, course 50 or 51. Assistant Professor Helleberg.

55.—PSYCHOLOGICAL SOCIOLOGY. Three hours, second semester, at 2:30. Origin, development and characteristics of the social mind; psychical activities; psychology of races, classes, and of the crowd and the "mob"; psychology of political and social institutions. Prerequisite, course 50 or 51. Assistant Professor Helleberg.

56.—THE FAMILY. Two hours, second semester, at 2:30. The origin and growth of the family historically considered.

The family as the unit of society. The legal relation of husband and wife and of parents and children. The economic basis of family life. The psychology of family life. The family as a type of society. Its importance in the preservation of society. The pathology of the family. The relation of the family to the general social organism, politically; religiously and socially. Assistant Professor Helleberg.

57.—SOCIALISM. Two hours, first semester, at 2:30. The development of modern socialistic theories, including a study of French and German socialism. Modern socialistic tendencies and their causes. The development of social democracy. The limitations of industrial liberty. Government control and government ownership of industries. Assistant Professor Helleberg.

58.—ANTHROPOLOGY. Two hours, first semester, at 8. The natural history of man. The probable origin and antiquity of man. Comparison with anthropoid apes. Man's physical, social and mental characteristics. Methods of obtaining food, shelter, and distribution over the earth. Evidences of Tertiary man. Relics of man found in the gravel drift, caves and mounds. The beginnings of art and industry. The division of labor. The origin and development of language. Professor Blackmar.

59.—ETHNOLOGY. Two hours; second semester, at 8. Origin of races and ethnic groups. Racial differentiation and development. Characteristics of ethnic society. The conflict and survival of races. Their geographical distribution. Influence of geographical and physical environment. Comparison of natural and civilized races. Prerequisite, course 58. Professor Blackmar.

### *Economics.*

Students of the College or University who are looking forward to a business career will find in the courses of economics here offered a line of study especially adapted for business training. It is in such courses of economic science that the forces and laws controlling the business world are best illustrated and grasped by the future man of affairs.

With this end in view, the work, as far as possible, should be undertaken in a consistent and orderly manner, as outlined in the numerical arrangement of courses here presented.

While every course published in the department of economics is valuable as a preparation in business, special attention should be called to accounting, insurance, business management, transportation, railway rates, money and credit, banking, etc.

Advanced engineering students who can not take economics I are allowed to take the courses in economic history, transportation, railway rates, and all such economic courses bearing on

engineering activities, but such students must be registered in the College.

1.—ELEMENTS OF ECONOMICS. Three hours, both semesters, at 8 and 3:30. This course endeavors to explain the general laws of man's relation to wealth. It furnishes the basis for the scientific understanding of business activities as well as a foundation for advanced work. Associate Professor Hubbard.

2.—ECONOMIC HISTORY OF ENGLAND.\* Three hours, first semester, at 9. A study of the general development of agriculture, industry and commerce in England. The period covered extends from the Saxon invasion to the present time, and special attention is given to early agriculture, early town life, merchant and craft guilds and other corporate privileges, and the rise of commerce, trade routes, markets and fairs. Prerequisite, course 1. Associate Professor Boynton.

3.—ECONOMIC HISTORY OF THE UNITED STATES.\* Three hours, second semester, at 9. Attention is given to colonial agriculture, industry, and trade. The effect upon American life of the westward expansion, the economic significance of slavery in the South and in the country at large, the industrial development of the North prior to the Civil War, and the resources of the nation and the rise and importance of American manufactures will receive due attention. A survey will be made of the present industrial situation under corporate methods and of the outlook for democratic control of industrial conditions. Prerequisite, course 1. Associate Professor Boynton.

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50.—MONEY AND CREDIT. Two hours, first semester, at 10:15. The principal forms of money and of credit, as developed in the experience of the principal countries, and as at present in use in various parts of the world, are studied. Prerequisite, course 1. Associate Professor Boynton.

51.—BANKING. Two hours, second semester, at 10:15. The principles of banking are studied, and also the principal banking systems, both as to the principal historical steps in their development and as to their present forms and methods in different countries. Prerequisite, course 50. Associate Professor Boynton.

52.—FINANCIAL HISTORY OF THE UNITED STATES. Three hours, second semester, at 10:15. This course will trace the experience of this country in providing money for the business of the country and revenue for the federal government. The laws of the United States in regard to currency, banking, public revenue, expenditure, and debt, the methods of administering those laws, and the resultant conditions, will be examined. Prerequisite, course 1. Associate Professor ———.



53.—PUBLIC FINANCE. Three hours, first semester, at 2:30. The different sources of government revenue are examined, taxation receiving chief attention. Government expenditure and public debt, also, are studied. Associate Professor ———.

54.—CORPORATE FINANCE. Three hours, first semester, at 2:30. The financial side of large business operations, as met with chiefly in corporations, is studied with a view to giving a better understanding of frequently misunderstood corporate actions. Prerequisite, course 1. Associate Professor ———.

55.—HISTORY OF COMMERCE AND COMMERCIAL GEOGRAPHY. Three hours, first semester, at 10:15. A survey is made of the commerce and trade routes of the ancient peoples surrounding the Mediterranean Sea, of the mediæval commerce by the Italian cities and the Hanseatic League, the position of the trader and the merchant, together with the commodities of early commerce. The development of the commerce of the separate nations is concluded to the present time, the policies they have pursued in securing it, and the natural advantages each possesses in the competition of the world market. The sources of raw materials, the location of the demand and supply of finished products, and the governmental activities designed to stimulate national prestige along commercial lines. Associate Professor Boynton.

56.—ECONOMICS OF DISTRIBUTION. Two hours, first semester, at 3:30. This course gives an opportunity for pursuing the study of economic theory further and more thoroughly than is possible in course 1. Prerequisite, course 1. Associate Professor ———.

57.—HISTORY AND DEVELOPMENT OF TRANSPORTATION. Two hours, first semester, at 11:15. Methods of transportation; their economic aspects. The historical development of the canal and the railway. Special attention to United States. This course is designed as preparation, in part, for course 58, and should be preceded by courses 1 to 3, and course 55. Associate Professor Boynton.

58.—RAILWAY RATES AND GOVERNMENT REGULATION. Three hours, second semester, at 11:15. A study of the theory of railway rates, competition in transportation, and the problems of local and individual discrimination. The experience of state railway commissions and the work of the Interstate Commerce Commission, and the efforts by recent legislation, state and national, to deal with the problems arising in connection with transportation. Should be preceded by course 57. Associate Professor Boynton.

59.—HISTORY OF TRADE-UNIONISM AND LABOR ORGANIZATION. Three hours, first semester, at 11:15. The growth and nature of labor organizations since the appearance of a distinct wage-



earning class in society will be traced. Special consideration will be given to the growth of trade-unionism in England during the past 125 years, and to the more recent development of the labor movement in the United States, Germany, and Australasia. Should be preceded by courses 1 to 3, inclusive. Associate-Professor Boynton.

60.—LABOR PROBLEMS. Two hours, second semester, at 11:15. Present-day problems connected with labor—the problems arising from the existence of a laboring class and an employing class. Their mutual relations, the natural difficulties arising between them, and the effect of these relations upon society. Should be preceded by course 59. Associate Professor Boynton.

61.—INSURANCE. Three hours, second semester, at 2:30. The general economic nature of risk; different groups of insurance—marine, fire and life—and various newer extensions of the principles to other kinds of risks; various forms of insurance organizations. Prerequisite, course 1. (Not given in 1910-'11.) Associate Professor ———.

62.—ACCOUNTING. Two hours, second semester, at 3:30. The object of this course is to develop the economic principles underlying the so-called higher accounting, which aims to give, at all times, a true and complete, but condensed, representation of the real condition of the particular business to which it is applied. Prerequisite, course 1. Associate Professor ———.

63.—ECONOMICS OF AGRICULTURE. Three hours, second semester, at 2:30. Special reference to American conditions. The settlement of the public domain, the present efforts of the government to reclaim waste areas by irrigation, and the organized work and coöperation of the Department of Agriculture. The statistics of crop production, markets for agricultural products at home and abroad. Land values, rents and taxation, in their special bearing on agricultural lands. Assistant Professor Hubbard.

## ZOOLOGY.

Professor McCLUNG.  
Professor DYCHE.  
Assistant Professor BAUMGARTNER.  
Assistant Professor MOODIE.  
Assistant Professor SCAMMON.  
Miss NOWLIN, Instructor.  
Mr. COOK, Instructor.  
Mr. LINDSEY, Assistant Instructor.  
Mr. E. A. BAUMGARTNER, Fellow.

EQUIPMENT.—The department is in the possession of ample facilities in the way of specimens and apparatus for the presentation of the courses outlined below. The historical development of vertebrate life is made teachable by the large paleontological collection in the museum. Representative types of inverte-

brates from the Atlantic and Pacific coasts, as well as from Bermuda, make possible the thorough treatment of almost any of the lower orders. Histological, cytological and embryological material of great variety has been provided. Microscopes, microtomes and other apparatus necessary for even the most advanced work are at hand. The well-equipped preparation rooms make instruction in the museum very thorough.

**ADVICE CONCERNING CHOICE OF COURSES.**—Course 1 is designed as an introduction to the subject, and, so far as possible, gives a general survey of the animal kingdom. The character of the work is such as to lay particular stress upon training in the independent observation and correlation of facts. It is, therefore, a course which may be taken by those who wish merely to gain a general idea of zoölogy and to become acquainted with the methods of scientific work. As an elementary course it forms a basis for any advanced work, and is required for entrance into the other courses, except 70. Taken with course 1 in botany, it completes a year's training in elementary biology.

Courses 2 and 3 logically follow course 1, and should be taken by those who desire a more comprehensive view of the subject than can be gained in a half-year's study. While more advanced in character than the first course, they are not too technical for the general student. They should be taken by all wishing to continue in the more advanced courses.

Students contemplating the study of medicine are recommended to take not less than ten hours of work in zoölogy. Arrangements have been made to provide such students with as much comparative anatomy as possible. Consultation should be had with the head of the department, early in the course, for the purpose of arranging the work.

1.—**ELEMENTARY ZOÖLOGY.** Five hours, first semester, 1:30 to 3:30. A course in the general principles of zoölogy. The work consists of a laboratory study of type specimens, together with lectures upon classification, habits, distribution, etc. Professor McClung, Assistant Professor Baumgartner, Assistant Professor Moodie, Miss Nowlin, and Mr. Lindsey.

2.—**INVERTEBRATE MORPHOLOGY.** Five hours, second semester, 10:15 to 12:15. A continuation of the work begun in course 1, with particular reference to the Protozoa, Porifera and Coelenterata. For prospective medical students special work on pathogenic Protozoa will be provided. Miss Nowlin.

3.—**CHORDATE MORPHOLOGY.** Five hours, second semester, 1:30 to 3:30. A course dealing with the chordates, and designed especially for students preparing for the study of medicine. Prerequisite, course 1. Assistant Professor Baumgartner and Assistant Professor Moodie.

50.—SYSTEMATIC AND DESCRIPTIVE ZOOLOGY. Five hours, first semester, 3:30 to 5:30. Lectures, with exhibition of specimens. Laboratory work in systematic zoölogy. Prerequisites, courses 1 and 2 or 3. Assistant Professor Moodie.

51.—FIELD WORK AND LIFE HISTORIES. Three hours, second semester, Monday and Friday, at 3:30, and Saturday morning. A systematic and ecological study of the local fauna. Prerequisites, courses 1 and 2 or equivalent. Assistant Professor Baumgartner.

53.—HISTOLOGY, OR MICROSCOPIC ANATOMY. Five hours, first semester, 3:30 to 5:30. Microscopical manipulation, the study of normal tissues and the methods of preparing mounted objects are presented in this course. Lectures and laboratory work. Prerequisites, courses 1 and 2 or equivalent. Assistant Professor Baumgartner, Assistant Professor Scammon, and Mr. Cook.

54.—CYTOLOGY, OR CELLULAR BIOLOGY. Five or ten hours, throughout the year, by appointment. A course in cell structure and development. Lectures and laboratory work. Prerequisites, courses 1 and 2 or equivalent. Professor McClung and Miss Nowlin.

55.—EMBRYOLOGY. Five hours, second semester, by appointment. The ontogeny of the shark, chick, pig, etc. Prerequisites, course 53 or 54. Assistant Professor Scammon and Mr. Cook.

56.—PALEOZOOLOGY. Five hours, by appointment. A course dealing with the succession of animal life upon the earth. Prerequisites, courses 1 and 3. Geology 1 is recommended as further preparatory work. Professor McClung or Assistant Professor Moodie.

70.—ORGANIC EVOLUTION. Three hours, second semester, at 9. This course will present the theory of evolution historically and in the light of recent important evidence derived from observation and experiment. Lectures, readings and recitations. Professor McClung and Professor Stevens.

### III. *School of Engineering.*

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#### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM H. CARRUTH, PH. D., Vice President of the Faculties,  
and Professor of Germanic Languages.

FRANK O. MARVIN, A. M., Dean, Professor of Civil Engineering.

EDGAR H. S. BAILEY, PH. D., Professor of Chemistry and Metallurgy.

CHARLES G. DUNLAP, Litt. D., Professor of English Literature.

ERASMUS HAWORTH, PH. D., Professor of Physical Geology and Mineralogy.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

PERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.

ROBERT K. DUNCAN, A. B., Professor of Industrial Chemistry.

GEORGE C. SHAAD, E. E., Professor of Electrical Engineering.

JOHN W. YOUNG, PH. D., Professor of Mathematics.

ELMER F. ENGEL,\* A. M., Associate Professor of German.

HAMILTON P. CADY, PH. D., Associate Professor of Chemistry.

MARTIN E. RICE, M. S., Secretary. Associate Professor of Physics.

WILLIAM C. HOAD, B. S., Associate Professor of Civil Engineering.

JOHN N. VAN DER VRIES, PH. D., Associate Professor of Mathematics.

B. J. DALTON, B. S., Associate Professor of Railway Engineering.

CLINTON M. YOUNG, B. S., Associate Professor of Mining Engineering.

HERBERT A. RICE, C. E., Associate Professor of Civil Engineering.

FRANK E. WARD, Superintendent of Fowler Shops.

FREDERICK N. RAYMOND, A. M., Assistant Professor of English.

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\* On leave.



GEORGE J. HOOD, B. S., Assistant Professor of Mechanical Drawing.

RALPH E. BASSETT, A. M., Assistant Professor of Romance Languages.

CHARLES I. CORP,\* B. S., Assistant Professor of Mechanical Engineering.

JAMES D. NEWTON, M. E., Assistant Professor of Civil Engineering.

CHARLES COCHRAN, B. S., (M. E.), Assistant Professor of Mechanical Drawing.

FRANK E. JONES, Assistant Professor of Pattern Making.

ALFRED H. SLUSS, B. S., (M. E.), Assistant Professor of Mechanical Engineering.

HARRY GARDNER, B. S., Assistant Professor of Sanitary Engineering.

EDWARD M. BRIGGS, A. M., Assistant Professor of German.

ARTHUR D. PITCHER, PH. D., Assistant Professor of Mathematics.

EDGAR L. TEAGUE, A. M., Assistant Professor of Chemistry.

HERMAN C. ALLEN, A. M., Assistant Professor of Chemistry.

CLARENCE A. JOHNSON, B. S., Instructor in Electrical Engineering.

HOWARD A. PARKER, B. S., (C. E.), Instructor in Civil Engineering.

ARTHUR B. FRIZELL, PH. D., Instructor in Mathematics.

MAY GARDNER, A. B., Instructor in French.

WILLIAM E. SCHULTZ, A. M., Instructor in Rhetoric.

EDWARD A. WHITE, B. S.,† Instructor in Mechanical Engineering.

BENJAMIN F. STELTER, B. S., Instructor in English.

E. A. BERKELEY, Instructor in Forging.

G. W. HESS, Instructor in Mathematics.

EPHRAIM E. LANDRUM, Assistant Instructor in Woodworking.

W. A. HOBBS, A. B., Assistant Instructor in Chemistry.

WALTER BOHNSTENGEL, B. S., Laboratory Assistant in Mechanical Engineering.

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\* On leave.

† In Professor Corp's place for the year 1910-'11.

## PURPOSE OF THE SCHOOL.

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The School of Engineering is the scientific or technical school of the University. It offers what is, in the main, technical training in the various departments of engineering—civil, electrical, mechanical, mining, sanitary, and chemical. The course of study in each of these branches of engineering is designed first of all to furnish a broad and thorough training in mathematics, mechanics, drawing, and physical science, the fundamental subjects on which the more professional subjects are based. The six courses are alike during the first year, and are nearly identical up to the end of the Sophomore year, but differ considerably thereafter, each emphasizing the subjects peculiar to itself and giving as much technical training as is consistent with the thorough inculcation of sound theory.

## DEGREES.

All courses in the School of Engineering lead to the degree of bachelor of science. All work for higher degrees is under supervision of the Faculty of the Graduate School. The degree of master of science is granted to graduates in engineering after completion of one year's work in residence.

Graduates in engineering in this University, and masters of science who have received their degrees through the Graduate Faculty, are eligible to the professional degrees of civil engineer, electrical engineer, mechanical engineer, mining engineer, or chemical engineer, whichever is appropriate to the undergraduate course taken. Candidates for these degrees must have spent at least three years' actual time in professional practice, in positions of responsibility, in the design, construction or operation of engineering works, and must furnish detailed and satisfactory evidence as to the nature and extent of this practice.

They must submit an engineering thesis, accompanied by detailed explanations, drawings, specifications, estimates, etc., and embodying the results of their own work or observation. If approved, the thesis and all accompanying material become the property of the University.

All theses for any professional degree must be delivered to the Dean of the School of Engineering on or before May 15.

## ADMISSION.

There are two methods of admission to the School of Engineering of the University: first, by examination; second, by certificate.

## 1. BY EXAMINATION.

Times and place of examination for admission to the School of Engineering are the same as for admission to the College. Candidates may divide the examination between two years, as noted.

## 2. BY CERTIFICATE.

Nearly all students enter the School of Engineering by certificate from high schools, academies, preparatory schools of other colleges and universities, or from military schools, accredited by the University. The candidate for admission by certificate must present either a certificate or other credential, as noted in connection with admission to the College. In general, the same rules apply in regard to admission by certificate to the School of Engineering as apply for admission to the College.

## SUBJECTS FOR ADMISSION.

Fifteen units are required for admission.

REQUIRED.	OPTIONAL.	
Mathematics 1, 2, 3, algebra and plane and solid geometry, 3 units.	Latin 1, 2, 3,	3 units.
English 1, 2, 3,	German 1, 2, 3,	3 "
Physics,	French 1, 2, 3,	3 "
Free-hand or me- chanical drawing,	Greek 1, 2, 3,	3 "
Foreign language— may be French or German or Latin; 3 units of one, or 2 units of any one and 1 unit of any other,	Greek and Rom. hist.,	1 "
	Mediæval and modern history,	1 "
Required,	English history,	1 "
Optional,	American history,	1 "
Total,	Chemistry,	1 "
11 units.	Higher algebra,	$\frac{1}{2}$ "
4 "	Plane trigonometry,	$\frac{1}{2}$ "
15 units.	Physical geog.,	$\frac{1}{2}$ or 1 "
	Botany,	1 "
	Physiology,	1 "
	Zoölogy,	1 "
	Economics,	$\frac{1}{2}$ or 1 "
	Manual training,	1 "

Four units must be chosen from the optional list.

## DEFICIENCIES AND UNITS OF ADMISSION.

The candidate may be admitted to the Freshman class although deficient in some of the requirements as laid down above, provided such deficiency does not exceed two units. All deficiencies must be made good within such time as may be fixed in each individual case by the Dean of the School of Engineering.

Applicants for admission are advised to come without deficiencies, and to be especially well prepared in algebra and geometry.

An entrance unit represents five periods a week, of not less than forty minutes each, for thirty-five weeks. A unit in the School of Engineering represents five periods a week for a half-year. In making up deficiencies in University classes, one School of Engineering unit is counted as equivalent to one entrance unit.

## ADVANCED CREDIT.

Advanced credit for work in preparatory schools will be given upon examination only. For times and place of such examination, see under "The College."

## ACCREDITED SCHOOLS.

The list of schools accredited to the School of Engineering is practically the same as that of schools accredited to the College.

## ADMISSION TO ADVANCED STANDING.

For any advanced rank, the applicant must have completed all of the studies of the course below the rank for which he applies, including the entrance requirements, or their substantial equivalent, as determined by the committee on advanced standing. Application for credits toward advanced standing should be made to the Dean of the School of Engineering.

## SPECIAL STUDENTS.

Opportunity is given in the School of Engineering for the admission of persons of mature years who desire to pursue some special line of work, without following any prescribed course or becoming candidates for a degree.

The admission of such special students is directly under the control of the Dean of the School of Engineering, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for standing as special students must present satisfactory evidence of proper preparation for the studies desired, and must also meet other requirements as fixed by the Faculty.

Special students are subject to the same regulations as reg-



ular students with regard to the quality of work performed and attendance at recitations and examinations, but not as to number of studies to be pursued.

### REGISTRATION AND ENROLLMENT.

All candidates for admission to the School of Engineering having high-school certificates, and all students intending to pursue their studies in the ensuing year, must present themselves for registration at the University on September 13 to 16, inclusive, 1911. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay. Preliminary registration may be made through the mails by forwarding to the Registrar a certified transcript of preparatory work, this registration to be completed by the Registrar during the opening week of the following semester.

The Dean of the School of Engineering is charged with the execution of all University and Faculty rules relating to the enrollment of students in classes and their choice of studies.

Upon registration, each student will receive from the Registrar a certificate of his standing, which he will present to the Dean of the School, who is charged with the duty of enrollment of students in classes, the selection and arrangement of subjects, and the assignment of hours.

At least two weeks before the close of any term, each student then in attendance must present his application for enrollment for the term following to the Dean, whose approval of the work selected is a necessary condition for admission to classes.

### INADEQUATE PREPARATION.

When students show by their current work insufficient entrance preparation in any study, they may be required to make good such deficiency in any manner prescribed by their instructors.

### GRADES AND FAILURES.

Examinations are held at regular stated periods and at such other times as may be provided for by the regulations of the Faculty. At the close of each semester, a summary of the student's work is reported to the Registrar, for entry upon the general record. At the end of each semester, the parent or guardian of each student will be furnished, on request, a copy of the entries relating to that student.

Absence from examination or failure in more than one-third of his work in any one semester severs a student's connection with the University, which can only be renewed through the consent of the Dean of the School.

Any withdrawal from school or from any class must be authorized by the Dean; otherwise such absence will be construed as failure.

#### FEEES.

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

Those students taking summer field work will be charged the actual cost of living and incidental expenses.

## PROGRAM OF STUDIES.

Leading to the degree of Bachelor of Science.

The courses of study in the School of Engineering are almost entirely required. The work is in the main technical, and requires preparation of a high order, especially in mathematics. It also requires continuous effort in the courses themselves, which call for the entire time of the student to satisfactorily succeed.

The work of the Freshmen year is common to all students of the School of Engineering, so that a choice between the several lines of engineering need not be made until after a year's experience with college life. As a further aid in making an intelligent choice, the general aims of the several courses are here briefly stated.

### CIVIL ENGINEERING.

The first aim is to impart as broad a scientific training as the length of the course and the essential professional studies will allow, so that as many avenues to successful service as possible may be open to the graduate. Along professional lines, emphasis is laid first on work in surveying and field methods, as these are of special value to young engineers; second, on mechanics and its applications to the design of roofs and bridges and other structures; third, on railway location and construction; fourth, on hydraulics and its applications to irrigation and canal work; fifth, on sanitary and municipal engineering, including water supply, sewerage, and roads and pavements. Stress is placed on the study of principles, as being the things not likely to be acquired in after-life.

### MUNICIPAL AND SANITARY ENGINEERING.

This course is a modification of the course in civil engineering, and is intended for those desiring a more extensive study and a more thorough training in general sanitary science and in municipal and sanitary engineering practice. The program of study is practically the same as in civil engineering, except that during the Junior and Senior years the railroad work and the work in bridge designing are replaced by studies more closely related to public sanitation and municipal engineering practice.

This new added work includes a somewhat specialized course in bacteriology, particularly in its relation to water supply and sewerage; a short lecture and laboratory course in the chemical analysis of water; a broad and general study of sanitary science as related to public health problems; courses in the design of

engineering structures related to sewage disposal and water purification; and a study of the theory and practice of reinforced concrete construction. The course also aims, by means of work in the sanitary laboratory and engineering experiment station, by visits of inspection to engineering works of interest to sanitary engineers, and by means of papers and informal discussions in the journal meetings, to train the student's judgment in regard to sanitary problems, and to strengthen his grasp upon the regular classroom studies.

### ELECTRICAL ENGINEERING.

The course in electrical engineering is designed to train the student in those fundamental principles of applied mathematics, physics, chemistry, mechanics and electricity which form the basis of all successful engineering work. The laboratory and shop work is arranged to develop and to encourage individual skill and ingenuity. Such experience in practical electrical work as is possible is also included in the course. The aim of the entire course is to develop in the student those qualities that are essential to the professional engineer as well as those that are essential to the electrical artisan. The thesis involves original investigation.

### MECHANICAL ENGINEERING.

In addition to the fundamental sciences common to all branches of engineering, this course offers professional work for students wishing to specialize in steam and gas engineering or mill engineering.

For the first branch the special work includes the designing of steam and gas engines and steam turbines, and a study of methods of power distribution and application by both mechanical and electrical means. Complete power-plant designs are made, both for the generation of electrical power and for direct use in manufacturing plants, and students become familiar with all forms of steam, gas, air-compressor, hydraulic and electrical machinery through their study and operation in the laboratories.

For mill engineering, the special work includes the designing of mill or shop buildings, traveling cranes, etc., and power distribution systems. It is intended to suit the needs of prospective engineers and managers of manufacturing plants of all kinds.

### MINING ENGINEERING.

The object of the course in mining is to qualify students for future work in prospecting, mining, milling, and smelting, in accordance with modern scientific principles. In adopting the course of study, it was endeavored to include a sufficient requirement in language work to give the student a good knowl-



edge of French, German and English, and to adjust the various essential subjects—mathematics, engineering, chemistry, metallurgy, mining, mineralogy, and geology—so that upon the completion of the course one may be well qualified for specializing along any line which his future life may make desirable.

### CHEMICAL ENGINEERING.

This course affords students an opportunity to specialize in chemistry, and to fit themselves for positions as chemists, managers or superintendents of manufacturing plants where the work is based on chemical science. This would include such industries as that of iron, zinc, gold and silver smelting and refining, the making of fertilizers, clay working, sugar refining, dyeing, bleaching, gas making, cement making, and general chemical manufacture. This course is broad enough for general training, and may be made special enough for technical work.

### WORK IN COMMON.

#### FRESHMAN YEAR.

All students of the School of Engineering have work in common during the Freshman year, the differentiation between courses occurring in the Sophomore year. In the statement of courses below, following each subject is stated the number of credits given to it; (a) and (b) signify first and second half-terms.

The modern foreign language chosen must be carried throughout the year, five hours each term. The grade of the courses will depend on the amount and kind of language offered for entrance.

#### *First Semester:*

Rhetoric 1E, three credits.

Mechanics 1, two credits.

French, German, or Spanish, five credits.

College Algebra (Mathematics 2), three credits.

Plane Trigonometry (Mathematics 3), two credits.

Free-hand Drawing (Mechanical Drawing 1), six hours for first six weeks of term. One credit.

Mechanical Drawing 2, six hours for last fourteen weeks of term. Two credits. Same days and hours as for free-hand drawing.

Shop Work 1 or 2, five hours. Two and one-half credits.

#### *Second Semester:*

French, German, or Spanish, five credits.

Analytical Geometry I (Mathematics 4), two credits.

Calculus I (Mathematics 5), three credits.

Descriptive Geometry (Mechanical Drawing 3), three credits.  
Rhetoric 2E, two credits.

Machine Drawing (Mechanical Drawing 4), six hours. Three credits.

Shop Work 1 or 2, five hours. Two and one-half credits.

For irregular students, classes in English, Algebra and Trigonometry, Elementary Mechanics, French 1, German 1 and 3 and Spanish 1 are given in the second semester, and classes in Analytical Geometry, Descriptive Geometry, Calculus, French 2 and German 2 are given in the first semester.

## CIVIL ENGINEERING.

### SOPHOMORE YEAR.

#### *First Semester:*

Physics 1E, lectures and recitations four hours and laboratory two hours. Five credits.

Chemistry 2, lectures and recitations three hours and laboratory two hours. Four credits.

Calculus II (Mathematics 7), three credits.

Analytical Geometry II (Mathematics 6), two credits.

Stereotomy (Civil Engineering 4), six hours. Three credits.

Shop Work 3, five hours. Two and one-half credits.

One technical report. One-half credit.

#### *Second Semester:*

Physics 2E, lectures and recitations four hours and laboratory two hours. Five credits.

Surveying (Civil Engineering 2), four hours, and field work once a week. Five credits.

Qualitative Analysis (Chemistry 3), lectures two hours and laboratory four hours. Four credits.

Topographical Drawing (Civil Engineering 1), six hours. Three credits.

Shop Work 4, five hours. Two and one-half credits.

One technical report. One-half credit.

#### *Summer Vacation:*

Surveying (Civil Engineering 3). Four weeks.

### JUNIOR YEAR.

#### *First Semester:*

Mechanics 50, five credits.

Advanced English Composition (English Language 50E), three credits.

Geology 1, five credits.

Railway Surveying (Civil Engineering 58), four hours, and field work once a week. Five credits.

Railway Drawing (Civil Engineering 50), six hours. Three credits.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Engines and Boilers (Mechanical Engineering 53), three credits.

Location of Railways (Civil Engineering 57), three credits.

Roads and Pavements (Civil Engineering 56), two credits.

Graphical Statics (Civil Engineering 51), six hours. Three credits.

Testing Laboratory (Mechanics 52), four hours. Two credits.

One technical report. One-half credit.

*Summer Vacation:*

Surveying (Civil Engineering 53). Four weeks.

## SENIOR YEAR.

*First Semester:*

Hydraulics (Mechanics 53), (a), four hours. Two credits.

Hydraulic Machinery (Mechanical Engineering 56), (b), four hours. Two credits.

Sewerage (Civil Engineering 59), (a), five hours. Two and one-half credits.

Waterworks (Civil Engineering 60), (b), five hours. Two and one-half credits.

Roofs and Bridges (Civil Engineering 61), ten hours. Five credits.

Hydraulic Laboratory (Mechanics 54), two hours. One credit.

Thesis, two and one-half hours, by appointment.

One technical report. One-half credit.

*Second Semester:*

Bridge Designing (Civil Engineering 62), ten hours. Five credits.

Specifications and Contracts (Civil Engineering 52), (b), five hours. Two and one-half credits.

Masonry (Civil Engineering 55), (a), five hours. Two and one-half credits.

Cement Laboratory (Civil Engineering 54), four hours. Two credits.

Optional. One full semester's work chosen from engineering, mathematical or scientific subjects not required in course. Five credits.

Thesis, two and one-half hours, by appointment.

## MUNICIPAL AND SANITARY ENGINEERING.

## SOPHOMORE YEAR.

(Same as in Civil Engineering.)

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Advanced English Composition (English Language 50E), three credits.

Geology 1, five credits.

Sewerage (Civil Engineering 59), (a), five hours. Two and one-half credits.

Waterworks (Civil Engineering 60), (b), five hours. Two and one-half credits.

Municipal Engineering Drawing (Civil Engineering 67), six hours. Three credits.

Sanitary Engineering Journal Meeting, one hour.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Engines and Boilers (Mechanical Engineering 53), three credits.

Water Analysis (Chemistry 56), six hours. Three credits.

Roads and Pavements (Civil Engineering 56), two credits.

Street Cleaning and Garbage Collection and Disposal (Civil Engineering 68), one credit.

Testing Laboratory (Mechanics 52), four hours. Two credits.

Sanitary Engineering Journal Meeting, one hour.

One technical report. One-half credit.

*Summer Vacation:*

Summer Field Work (Civil Engineering 53). Four weeks.

## SENIOR YEAR.

*First Semester:*

Hydraulics (Mechanics 53), (a), four hours. Two credits.

Hydraulic Machinery (Mechanical Engineering 56), (b), four hours. Two credits.

Water Bacteriology (Botany 50E), six hours. Three credits.

Sanitary Science and Public Health Problems (Civil Engineering 69), (a), five hours. Two and one-half credits.

Roofs and Bridges (Civil Engineering 61), ten hours. Five credits.

Sanitary Engineering Laboratory (Civil Engineering 70), two hours. One credit.

Hydraulic Laboratory (Mechanics 54), two hours. One credit.

Thesis, two and one-half hours, by appointment.

Sanitary Engineering Journal Meeting, one hour.

One technical report. One-half credit.



*Second Semester:*

- Sanitary Engineering Design (Civil Engineering 64), five credits.  
Specifications and Contracts (Civil Engineering 52), (b), five hours. Two and one-half credits.  
Masonry (Civil Engineering 55), (a), five hours. Two and one-half credits.  
Reinforced Concrete (Civil Engineering 65), (b), five hours. Two and one-half credits.  
Cement Laboratory (Civil Engineering 54), four hours. Two credits.  
Sanitary Inspection and Reports (Civil Engineering 72), one hour.  
Thesis, two and one-half hours, by appointment.  
Sanitary Engineering Journal Meeting, one hour.

## ELECTRICAL ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

- Physics 1E, lectures and recitations four hours, and one two-hour laboratory period per week. Five credits.  
Calculus II (Mathematics 7), three credits.  
Analytic Geometry II (Mathematics 6), two credits.  
Chemistry 2, lectures three hours and laboratory two hours. Four credits.  
Machine Drawing (Mechanical Engineering 1), six hours. Three credits.  
Shop Work 3, five hours, one day per week. Two and one-half credits.  
One technical report. One-half credit.

*Second Semester:*

- Qualitative Analysis (Chemistry 3), lectures two hours and laboratory four hours. Four credits.  
Physics 2E, lectures and recitations four hours, one two-hour laboratory period per week. Five credits.  
Kinematics (Mechanical Engineering 2), six hours. Three credits.  
Steam Machinery (Mechanical Engineering 3). Two credits.  
Mathematics 9E, two credits.  
Shop Work 4, five hours, one day per week. Two and one-half credits.  
One technical report. One-half credit.

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Theory of Electricity and Magnetism (Physics 52), three credits.

Thermodynamics (Mechanical Engineering 57), four credits.

Dynamo Machinery (Electrical Engineering 50), three credits.

Electrical Measurement (Physics 60E), four hours, two days per week, on alternate weeks. Two credits.

Electrical Laboratory (Electrical Engineering 54), four hours, two days per week, on alternate weeks. Two credits.

Shop Work 50, five hours, one day per week. Two and one-half credits.

One technical report. One-half credit.

*Second Semester:*

Mechanics of the Steam Engine (Mechanical Engineering 62), three credits.

Theory of Alternating Currents (Electrical Engineering 51), five credits.

Electrical Laboratory (Electrical Engineering 55), four hours, two days per week on alternate weeks. Two credits.

Electrical Measurements (Physics 61E), four hours, two days per week on alternate weeks. Two credits.

Strength of Materials (Mechanics 51), four credits.

Advanced English Composition (English Language 50E), three credits.

Testing Laboratory (Mechanics 52), four hours. Two credits.

## SENIOR YEAR.

*First Semester:*

Dynamo Machinery (Electrical Engineering 52), five credits.

Physical Chemistry (Chemistry 64), five credits.

Surveying (Civil Engineering 71), three credits.

Electrical Laboratory (Electrical Engineering 56), six hours. Three credits.

Engineering Laboratory (Mechanical Engineering 60), four hours. Two credits.

Professional Thesis (Electrical Engineering 61), one hour, by appointment.

One technical report. \*One-half credit.

*Second Semester:*

- Electric Power Transmission (Electrical Engineering 58),  
(a), five hours. Two and one-half credits.  
Electric Railways (Electrical Engineering 60), (b), five  
hours. Two and one-half credits.  
Electric Lighting (Electrical Engineering 57), (a), five hours.  
Two and one-half credits.  
Contracts and Specifications (Civil Engineering 52), (b), five  
hours. Two and one-half credits.  
Professional Thesis (Electrical Engineering 61), three hours,  
by appointment.  
Optional work, five hours. This work is to be chosen from  
any engineering, physics or mathematics courses offered,  
subject to the approval of the head of the electrical engi-  
neering department. Five credits.

**MECHANICAL ENGINEERING.**

## SOPHOMORE YEAR.

*First Semester:*

- Physics 1E, lectures four hours and laboratory two hours.  
Five credits.  
Calculus II (Mathematics 7), three credits.  
Analytical Geometry II (Mathematics 6), two credits.  
Chemistry 2, lectures three hours and laboratory two hours.  
Four credits.  
Machine Drawing (Mechanical Engineering 1), six hours.  
Three credits.  
Shop Work 3, five hours. Two and one-half credits.  
One technical report. One-half credit.

*Second Semester:*

- Physics 2E, lectures four hours and laboratory two hours.  
Five credits.  
Qualitative Analysis (Chemistry 3), lectures two hours and  
laboratory four hours. Five credits.  
Steam Machinery (Mechanical Engineering 3), two credits.  
Calculus III (Mathematics 9E), two credits.  
Kinematics (Mechanical Engineering 2), six hours. Three  
credits.  
Shop Work 4, five hours. Two and one-half credits.  
One technical report. One-half credit.

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Dynamo Machinery (Electrical Engineering 50), three credits.

Metallurgy I (Metallurgy 61), five credits.

Electrical Laboratory (Electrical Engineering 54), four hours, one day per week on alternate weeks. Two credits.

Engineering Laboratory (Mechanical Engineering 60), four hours. Two credits.

Shop Work 50, five hours. Two and one-half credits.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Machine Design (Mechanical Engineering 51), three credits.

Theory of Alternating Currents (Electrical Engineering 51), five credits.

Electrical Laboratory (Electrical Engineering 55), four hours, one day per week on alternative weeks. Two credits.

Testing Laboratory (Mechanics 52), four hours. Two credits.

Shop Work 51, five hours. Two and one-half credits.

One technical report. One-half credit.

*Summer Vacation:*

Summer Vacation Work (Mechanical Engineering 64). This course to be done before graduation.

## SENIOR YEAR.

*First Semester:*

Advanced English Composition (English Language 50E). Three credits.

Hydraulics (Mechanics 53), (a), four hours. Two credits.

Hydraulic Machinery (Mechanical Engineering 56), (b), four hours. Two credits.

Hydraulic Laboratory (Mechanics 54), two hours. One credit.

Thermodynamics (Mechanical Engineering 57), (a), five hours, two and one-half credits.

Advanced Steam Engineering (Mechanical Engineering 58), (b), five hours. Two and one-half credits.

Steam-engine Design (Mechanical Engineering 50), (a), eight hours. Two credits.

Gas-engine Design (Mechanical Engineering 55), (b), eight hours. Two credits.

Alternating-current Machinery (Electrical Engineering 63). Two credits.

Thesis (Mechanical Engineering 63), two hours. One credit. One technical report. One-half credit.



*Second Semester:*

- Contracts and Specifications (Civil Engineering 52), (b), five hours. Two and one-half credits.
- Engineering Practice (Mechanical Engineering 59). Two credits.
- Designing (Mechanical Engineering 52), ten hours. Five credits.
- Engineering Laboratory (Mechanical Engineering 61), four hours. Two credits.
- Heating and Ventilation (Mechanical Engineering 54). Two credits.
- Economic History of the United States (Economics 3). Three credits.
- Thesis (Mechanical Engineering 63), four hours. Two credits.

## MINING ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

- Chemistry 2, lectures three hours and laboratory two hours. Four credits.
- Calculus II (Mathematics 7), three credits.
- Analytical Geometry II (Mathematics 6), two credits.
- Elementary Geology (Geology 1), lectures and recitations five hours. Five credits.
- Machine Drawing (Mechanical Engineering 1), six hours. Three credits.
- Work Shop 3, five hours. Two and one-half credits.
- Mining Journal Meeting, one hour.
- One technical report. One-half credit.

*Second Semester:*

- Qualitative Analysis (Chemistry 3), lectures two hours and laboratory four hours. Four credits.
- Surveying (Civil Engineering 2), four hours, and field work once a week. Five credits.
- Mineralogy (Mineralogy 1E), lectures, recitations and laboratory work, five credits.
- Topographical Drawing (Civil Engineering 1), four hours. Two credits.
- Mining Journal Meeting, one hour.
- One technical report. One-half credit.

*Summer Vacation:*

- Surveying (Civil Engineering 3), four weeks.

## JUNIOR YEAR.

*First Semester:*

Physics 1E, lectures and recitations four hours, and laboratory, two hours. Five credits.

Economic Geology (Geology 52), three credits.

Mining 51, two credits.

Mining 50, five credits.

Quantitative Analysis (Chemistry 54), lectures and laboratory work, ten hours. Five credits.

Shop Work 4, five hours. Two and one-half credits.

Mining Journal Meeting, one hour.

One technical report. One-half credit.

*Second Semester:*

Physics 2E, lectures and recitations, four hours, and laboratory two hours. Five credits.

Assaying and Metallurgical Analysis (Metallurgy 57), ten hours. Five credits.

Mining 51, three credits.

Economic Geology (Geology 53), two credits.

Advanced English Composition (English Language 50E), three credits.

Mining Laws (Mining 57), lectures, one hour. (May be taken in Senior year.)

Mining Journal Meeting, one hour.

*Summer Vacation:*

Summer Excursion Work (Mining 59), four weeks.

## SENIOR YEAR.

*First Semester:*

Mining 52,\* five credits.

Mechanics 50, five credits.

Optional: Five credits from any geological, mathematical or engineering subjects not taken in the mining course.

Mining Journal Meeting, one hour.

One technical report. One-half credit.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Testing Laboratory (Mechanics 52), four hours. Two credits.

Metallurgy II (Metallurgy 62), five credits.

Mining 53, (a), five hours. Two and one-half credits.

Contracts and Specifications (Civil Engineering 52), (b), five hours. Two and one-half credits.

Professional Thesis (Mining 58).

Mining Law. (See Junior year.)

Mining Journal Meeting.

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\* Mining 56 may be taken in place of Mining 52.

## CHEMICAL ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

Physics 1E, lectures and recitations four hours and laboratory two hours. Five credits.

Chemistry 2, lectures three hours and laboratory four hours. Five credits.

Calculus II (Mathematics 7), three credits.

Analytical Geometry II (Mathematics 6), two credits.

Machine Drawing (Mechanical Engineering 1), six hours. Three credits.

Shop work 3, five hours. Two and one-half credits.

Chemical Club Meeting, one hour.

One technical report. One-half credit.

*Second Semester:*

Physics 2E, lectures and recitations four hours and laboratory two hours. Five credits.

Qualitative Analysis (Chemistry 3), lectures two hours and laboratory six hours. Five credits.

Mineralogy (Mineralogy 1E), ten hours. Five credits.

Shop work 4, five hours. Two and one-half credits.

Chemical Club Meeting, one hour.

One technical report, one-half credit.

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Advanced English Composition (English Language 50E), three credits.

Quantitative Analysis (Chemistry 54), twenty hours. Ten credits.

Chemical Club Meeting, one hour.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Testing Laboratory (Mechanics 52), four hours. Two credits.

Organic Chemistry (Chemistry 59), ten hours. Five credits.

Metallurgy II (Chemistry 62), five credits.

Chemical Club Meeting, one hour.

One technical report, one-half credit.

## SENIOR YEAR.

*First Semester:*

Three optionals: Fifteen hours to be chosen from engineering, mathematical or science subjects not included in course, for which the student may have the requisite preparation. Fifteen credits.

Chemical Club Meeting, one hour.

One technical report, one-half credit.

*Second Semester:*

Specifications and Contracts (Civil Engineering 52), (b), five hours. Two and one-half credits.

Chemical Club Meeting, one hour.

Assaying and Metallurgical Analysis (Chemistry 57), ten hours. Five credits.

Thesis.

Physical Chemistry (Chemistry 65), five credits.



## EQUIPMENT.

The School of Engineering is part of the general University, and hence the entire equipment of the University is also equipment of the School of Engineering in all things in which engineering students are concerned. The work of the Engineering School which is common to several schools of the University, such as mathematics, physics, chemistry, languages, etc., is carried on to some extent in buildings and by departments of instruction not exclusively for engineering students; while such work of the School as is technical and exclusively engineering in character is carried on by departments of instruction primarily for engineering students and largely in buildings erected for the special work of the School. Below will be described that part of the general equipment of the University which pertains chiefly to the work of this School. For other equipment, see under the College and other schools of the University.

## BUILDINGS.

The buildings erected exclusively for engineering work are the Engineering Building, the Mechanical Laboratory in connection with the Power Plant, and the Fowler Shops. The work in mining is provided for in the Geology and Mining Building. For description of these buildings, see under the heading "Buildings and Grounds."

## LIBRARIES.

The scientific portion of the general University library is available for the use of engineering students. That portion of direct interest to students of civil, sanitary, electrical and mechanical engineering is located in the library and reading room of Marvin Hall; those relating to geology and mining are to be found in the department library in Haworth Hall, and those of interest to chemical engineering students in the Chemistry Building. The leading technical journals are to be found in these various reading rooms.

## DRAWING ROOMS.

In the Engineering Building there are six large, well-lighted drawing rooms, provided with individual tables containing drawers for each student's outfit and cabinets for drawing boards.

On the walls and contained in various print-cases are photographs of actual constructions, and large numbers of blue prints of working drawings for bridges, railway structures, sewers, waterworks, power and light stations, mine plants, etc.

## LABORATORIES.

Numerous and well-equipped laboratories are provided for experimental work in engineering and scientific subjects. These laboratories and equipments are described in detail under the various engineering courses and scientific departments.

## INSPECTIONS AND VISITS.

Occasional trips are made by advanced students and their instructors for the purpose of inspecting and studying various engineering works, such as large machine shops, power plants, lighting systems, steam and electric railways, city waterworks, sewerage systems, cement works, mining equipments, smelters, etc.

## LECTURES AND SOCIETIES.

In each engineering course there is regularly maintained a journal meeting for the review of current engineering literature or a society for the discussion of engineering topics. These societies are described more fully under the heading of "University Organizations." Through the efforts of these societies and the members of the engineering Faculty, a large number of lectures by practical engineers are secured during the year.

## CIVIL AND MUNICIPAL ENGINEERING.

The instruments for field work in civil engineering comprise transits, levels, compasses, solar attachments, rods, chains, tapes, plane tables, heliotropes, current meter, aneroids, and other minor instruments. Among the above are a precise level for very accurate leveling, a secondary triangulation transit for topographical work, and an altazimuth instrument for use on primary triangulations, which has a ten-inch circle, read to single seconds of arc.

For the summer work in surveying a complete camping outfit is provided. Planimeters, Thatcher and Manheim slide rules and Colby's stadia slide rules are used for rapid calculation and estimation of quantities.

The testing-of-materials laboratory, situated in the basement of the Engineering Building, is equipped for making tests on all kinds of structural materials.

The principal machines are a 200,000-pound Olsen universal testing machine capable of testing beams up to twenty feet in length and columns up to ten feet in height; two 100,000-pound and one 40,000-pound universal testing machines; a 50,000-inch-pound Olsen torsion machine; a 50,000-pound transverse machine; a White-Souther alternate-stress machine, and a standard rattler for testing paving brick. The laboratory is well equipped with small apparatus, such as extensometers, both direct-reading and autographic, compressometers, etc.

The concrete laboratory is provided with mixing machinery, molds for making test pieces, and apparatus for the mechanical analysis of sands and cements.

The cement laboratory has been completely equipped with new apparatus, and affords facilities for extended investigation work as well as for the current undergraduate courses.

The road-materials laboratory contains various machines for testing the strength, resistance to abrasion, and the cementing power of the dust of stone, the value of which as material for the building of rock roads is under investigation.

The hydraulic laboratory contains a measuring pit, a large steel orifice tank for experimentation with jets, a triplex power pump, two centrifugal pumps, pipe lines, weir boxes, gauges, a Venturi meter with manometer, a Pelton water motor, etc., arranged to illustrate the laws of fluid motion, and affording some opportunity for testing hydraulic machinery.

The sanitary laboratory is filled with apparatus for the investigation of water and sewage. It is not designed to supplant the chemical laboratories, but to afford means for making approximate and quick analyses for engineering purposes of samples suspected of contamination. The laboratory is also to be used in connection with research work along sanitary lines, in connection with an experimental plant for the treatment of the sewage from some of the University buildings.

### ELECTRICAL ENGINEERING.

The electrical engineering laboratories are located in the Engineering Building and comprise a dynamo laboratory, a standardizing laboratory, a photometer room, and space for the telephone equipment. The standardizing apparatus and the photometric equipment are entirely new. The dynamo laboratory was moved from Fowler Shops during the past year, and many new machines were added to its equipment.

The dynamo laboratory is now fitted with a complete line of both alternating and direct-current machines, the former varying in capacity from a two-horse power motor to a 50-kilowatt generator, while the direct-current machines range in capacity from one and one-half kilowatts to 20 kilowatts. These machines have been essentially selected with the view of supplying a complete set of experimental machines and to illustrate modern design and practice in dynamo-electric machinery. Individual motor drive is used for all experimental work and a chain hoist and trolley have been provided for use in quickly moving any of the machines to the position in which they may be required. Very few permanent connections are used, but the switchboards, connecting boards, and testing tables have all



been especially designed to facilitate the connection of any piece of apparatus to a proper power supply. Direct current is supplied from the University power plant but all other voltage supply is through the agency of motor-generator sets in the laboratory. The machines in this room are also used as sources of current supply for the other electrical laboratories. The assortment of field and load rheostats, transformers, reactance coils, etc., is quite complete.

In the standardizing laboratory provision is made for the calibration of all types of electrical measuring instruments and for the study of problems in electrical measurements. The equipment consists of a potentiometer, and A. C.-D. C. comparator; laboratory standard ammeters, voltmeters, and wattmeters, a precise Wheatstone bridge; a portable testing set; an inductance bridge; and a three-element oscillograph. The above instruments are all equipped with a complete set of auxiliaries such that any ordinary range of potential or current in either direct or alternating currents may be measured. A storage battery is provided as a source of steady current for use in calibrating instruments. The portable instruments used in the dynamo laboratory are cared for in the standardizing room. This set of instruments is very complete and includes the best of foreign as well as American manufacture. In addition to the instruments in regular use this set contains portable meters of suitable types and ranges for the tests of power plants or of machines in regular commercial operation.

The photometer room is fitted with a 300-centimeter photometer bar, which is provided with necessary lamp holders and auxiliaries for the testing of the different types of lamps used in artificial illumination. A Bunsen screen, a Lummer-Brodum screen, and a flicker photometer have been provided for use in connection with this bar. A portable photometer of the Sharp-Miller type is used for studying the illumination of streets and buildings.

The telephone laboratory has an excellent assortment of modern telephone apparatus. This includes complete sets for illustrating installations, of both local battery and central energy types. The best selective systems are represented, as well as a complete small automatic telephone system.

### MECHANICAL ENGINEERING.

The new mechanical laboratory is a room 48 by 100 feet, with a gallery 16 feet wide extending across one end and along one side about 60 feet. On the gallery floor are office, computing room, storeroom, instrument room, oil room fitted up with special apparatus for testing lubricants, and a fuel-testing room equipped with a Mahler bomb calorimeter, a Parr calorimeter,



a Junker gas calorimeter, and apparatus for coal and gas analysis.

On the main floor are installed a 100-horsepower experimental boiler of Stirling water-tube type; an independently fired Foster superheater; a 10 x 24 x 30 cross-compound Monarch Corliss steam engine, equipped with Prony brake and also arranged to belt to a 55 K. W. direct-current generator; a 75-horsepower Ball automatic high-speed engine; a 20-horsepower De Laval steam turbine coupled to a centrifugal pump used for circulating water for the condenser; a 10-horsepower Atlas slide-valve engine; a C. H. Wheeler surface condenser of 600 square feet surface, equipped with wet and dry vacuum pumps; a 100-horsepower two-cylinder tandem Riverside gas engine direct-connected to the 55 K. W. generator above mentioned; two 8-horsepower gas or gasoline engines; a 75-horsepower Smith suction gas producer; a five-ton Cleveland ammonia compressor, motor driven, with submerged condenser and fittings complete, including a small ice box (can system), and an auxiliary brine cooler; several special lubricant-testing machines; a complete air-brake outfit for train service; and other minor pieces of apparatus. There will soon be installed a small refrigerating plant, a blower-testing outfit, and an automobile-testing plant. A very complete and representative outfit of engine indicators, steam calorimeters, etc., is owned by the department.

### MINING ENGINEERING.

The new building for geology and mining was so planned as to give excellent opportunity for the concentration of ores. The ore-dressing laboratory, 40 x 80 feet, is connected to the main building by a corridor, and is so placed on a slope that the floor is divided into four steps, allowing ore to be carried from one floor to the other by gravity. The equipment consists of a stamp mill, jaw breaker, and a gyratory crusher, a power screen and hand screens, jigs, hydraulic classifiers, a Wilfley table, a Frue vanner, and various other pieces of apparatus, giving opportunities for practical training in the operation of concentrating machinery and the determination of the proper treatment of various ores. Apparatus for experimental work on the effect of coal washing has been recently installed. The mining museum contains models of mines and a collection of mills and apparatus used in mining and milling operations. A large and well equipped laboratory for testing clays is now under construction for the purpose of making a thorough and complete examination of the clays of Kansas.

## CHEMICAL ENGINEERING.

The chemical laboratory contains separate rooms for general chemistry, qualitative analysis, quantitative analysis, physical chemistry, organic chemistry, metallurgy, and assaying. There are abundant specimens and samples of chemical products to use for illustration. For physical chemistry especially, the various instruments for electrical measurements are of new design and great accuracy. The department also has a liquid-air machine, so that experiments can be carried on at low temperatures. The assay room is provided with the usual furnaces, muffles, etc., for the complete assay of metallurgical products.

The laboratories for assaying and metallurgy are well equipped with gas, coke and gasoline muffle and crucible furnaces, with power grinding machinery, and with an assortment of pulp and button balances. In addition to this there are provided gas and coal calorimeters, a variety of pyrometers, apparatus for the microscopical examination of metals and for grinding sections, etc.

There are numerous research rooms specially equipped for the investigation of problems in industrial chemistry.

## THE FOWLER SHOPS.

The equipment of the shops is selected with a view of its being the means of teaching modern methods of machine construction, rather than to develop individual skill. The order of progress of the student through the various departments is consistent with the same idea.

In producing castings for machines the first step of pattern making is provided for, in a room 50 by 80 feet on the second floor, by benches and bench tools of high class, sufficient for a class of eighteen in a single section; twelve Richardson 11"x 28" speed-lathes with full tool equipment; a complete pattern maker's lathe, 18" x 12', and a 7-foot face-plate lathe; a combination table saw, an Oliver band saw, and a scroll saw; a power-driven boring machine and a sandpapering machine; and special hand tools to facilitate accurate and rapid work. The second step—that of the actual casting—is provided for by new foundry equipment installed in a room 60 by 66 feet, consisting of a Whiting melting cupola of one and one-half tons capacity per hour; a brass furnace complete; an automatic molding machine; a core machine and full equipment for core work; and all necessary hand tools for rapid and efficient work in a molding room, arranged in typical modern fashion. An elevator to the cupola-charging platform, and a geared tumbler and a grinder for cleaning castings, are included.

For preparing wrought metals, and for making cutting tools,

the forge shop, 40 by 50 feet, is equipped with sixteen Sturtevant down-draft forges and one large forge for heavy work, with a full complement of smithing tools, a Little Giant power hammer to facilitate rapid work and to familiarize students with its use.

For the final work of machine construction, the machine shop, a room 50 by 80 feet (soon to be enlarged), is supplied with fourteen 14" x 6' Standard engine lathes; one 18" x 12' and one 14" x 5' Challenge engine lathes with full attachments; one Jones and Lawson 2" x 24" turret lathe with chucking attachments; one 26" x 26" x 7' Gray planer; one Universal milling machine with spiral gear cutter and all attachments; a horizontal boring mill of late pattern; one 15" crank shaper; one 25" Challenge drill press with automatic feed; three 20" drill presses; one sensitive drill press; one 1½" bolt cutter; one Universal cutter and reamer grinder; one Yankee drill grinder; and other power dry and wet grinders, etc. The room has 160 feet of benches with twenty vises and a good outfit of hand tools, which, with stock and supplies, are kept in a tool room under the care of a skilled attendant, the students being held to a rigid observance of shop rules. Electric-motor drive by the group system is used throughout the shop.

### THE POWER PLANT.

The new power plant is in the same building with the mechanical engineering laboratory, and is designed for the double purpose of furnishing light and power to the entire University and of giving engineering students an opportunity to study the power costs with modern equipment.

The boiler-room equipment consists of two 150-horsepower Bonus-Kennicott water-tube boilers, and one 85-horsepower return tubular boiler, all equipped with Jones underfeed stokers; a Sturtevant economizer; and an induced-draft system with motor-driven fan. A pressure of 150 pounds is carried. All feed water is metered with a Worthington piston meter, and coal-weighing scales are provided.

In the generator room is a 150 K. W. 115-230 volt three-wire D. C. Western Electric generator, direct-connected to an 11 x 19 x 16 cross-compound Ball engine making 225 R. P. M.; a 100 K. W. 2300-volt, three-phase 60-cycle Curtis turbo-alternator built by the General Electric Company; a 75 K. W. motor-generator set A. C. and D. C., with synchronous motor, by means of which both forms of current may be delivered with one steam machine in operation; one 8 x 12 x 7 x 12 compound duplex Advance service pump for the general water supply of the Uni-

versity and one large high-pressure Underwriter's pump for fire protection.

All the main engines and pumps exhaust into one 1200 sq. ft. surface condenser equipped with both wet and dry vacuum pumps for high-vacuum service, and a centrifugal circulating pump. All pumps are motor driven. Crane pipe and fittings have been used throughout the plant.

The switchboard is of General Electric design, and is fully appointed, with complete outfit for recording and indicating meters. Six single-phase lighting circuits, one three-phase power circuit, and three three-wire D. C. power circuits supply the University buildings through an underground conduit system installed by the Standard Underground Cable Company.



## DESCRIPTION OF COURSES IN SCHOOL OF ENGINEERING.

All courses that are given in the first half of any semester are indicated by (a); those occurring in the second half of any semester by (b). The statement of hours refers to the number of actual hours per week. The value of each course is given in credits, one credit being one hour per week of recitation or lecture carried for a semester. In general, two hours a week per semester in drawing, shop or laboratory work equals one credit.

Courses numbered below 50 belong to the Freshman and Sophomore years. Courses numbered 50 and above to 100 belong to the Junior and Senior years.

### BOTANY.

Associate Professor BILLINGS.

50E.—WATER BACTERIOLOGY. For students in municipal and sanitary engineering. A brief general study of bacteria and their relations to every-day life, and of laboratory methods of cultivating and examining them. Particularly a more detailed study of the water-borne pathogenic forms, and of the bacteria concerned in sewage purification. First semester, six hours, Monday, Wednesday, and Friday, 8 to 10. Three credits. Associate Professor Billings.

For other courses in botany, see "The College."

### CHEMISTRY.

Professor BAILEY.

Associate Professor CADY.

Associate Professor BUSHONG.

Assistant Professor TEAGUE.

Assistant Professor ALLEN.

Miss HEDGER, Instructor.

Mr. YOUNG, Instructor.

Mr. BRODERSON, Instructor.

Mr. NASH, Instructor.

Mr. HOBBS, Assistant Instructor.

Mr. FRICHOT, Assistant Instructor.

2.—ADVANCED INORGANIC CHEMISTRY. Lectures, recitations, and laboratory work. Required in Engineering School, Sophomore. First semester, lectures three hours and laboratory two hours for all engineers except chemicals, who have four hours laboratory and a total of five credits, 8 to 10. Four credits. Associate Professor Cady and assistants.

3.—QUALITATIVE ANALYSIS. Recitations and laboratory work. Cady's Principles of Inorganic Chemistry and Bailey and Cady's Guide to the Study of Qualitative Analysis. Must be preceded

by course 2. Required in the Engineering School, Sophomore. Second semester, recitations two hours and laboratory four hours for all engineers except chemicals, who have six hours laboratory and a total of five credits, 8 to 10. Four credits. Associate Professor Cady and assistants.

51.—INDUSTRIAL CHEMISTRY. Three hours, first semester, at 9. A technical study of the manufacture of acids, alkalies, explosives, glass, pottery, porcelain, mortars, cements, paper, alcohol, vinegar, leather, etc. Thorpe's Outline of Industrial Chemistry. Open to Juniors and Seniors who have taken course 1. Three credits. Professor Duncan.

54.—QUANTITATIVE ANALYSIS. Lectures and laboratory work. Must be preceded by course 3. Required of mining engineers. First semester, ten hours, 3:30 to 5:30. Five credits. Required of chemical engineers, twenty hours, 1:30 to 5:30. Ten credits. Assistant Professor Landrum and assistants. Also given second semester, ten hours, 8 to 10. Five credits. Assistant Professor Allen.

50E.—GAS ANALYSIS. A laboratory course in the quantitative determination of the common gases, analysis of gaseous mixtures, flue gases, natural gas, etc. Gill's Gas Analysis and Hempel's Gas Analysis. Must be preceded by course 54. First semester, two hours, by appointment. One credit. Assistant Professor Allen.

51E.—OIL ANALYSIS. A laboratory course in the analysis of animal, vegetable or mineral oils. Determination of the specific gravity, viscosity, and other constants. Distillation as applied to mineral oils. Must be preceded by course 54. Second semester three hours, by appointment. Three credits. Associate Professor Bushong.

52E.—ELECTROLYTIC ESTIMATION OF METALS. A laboratory course in the practical work of analysis by electrolysis, including the use of the rotating cathode. Must be preceded by course 54. Second semester, two hours, by appointment. Two credits. Associate Professor Cady.

53E.—ANALYSIS OF BOILER FEED WATERS. Optional for engineers. Must be preceded by course 54. First semester, two hours. Two credits. Professor Bailey.

59.—ORGANIC CHEMISTRY. A study of the hydrocarbons and their derivatives. Lectures, recitations, and laboratory work. Must be preceded by courses 1 and 2. Required of chemical engineers, Junior. First or second semester, ten hours, 1:30 to 3:30. Five credits. Associate Professor Bushong.

64.—PHYSICAL CHEMISTRY. A course paying special attention to electrochemistry. Lectures and laboratory work. Must be preceded by chemistry 54, or by chemistry 3 and physics 1E

and 2E and mathematics 7. Required of electrical engineers; optional for mining engineers. First semester, five hours, at 10:15. Five credits. Associate Professor Cady.

65.—PHYSICAL CHEMISTRY. A general course in theoretical and physical chemistry. Lectures and laboratory work. Required of chemical engineers. Second semester, five hours, at 10:15. Five credits. Associate Professor Cady.

56.—WATER ANALYSIS. For students in municipal and sanitary engineering. A brief study of the methods of quantitative analysis, followed by laboratory practice in the sanitary analysis of water and sewage. Interpretation of the results of sanitary analysis. Second semester, six hours, by appointment. Three credits. Professor Bailey.

Other courses in chemistry are open as optionals to chemical engineers. See "The College."

### CIVIL AND MUNICIPAL ENGINEERING.

Dean MARVIN.  
Associate Professor HOAD.  
Associate Professor H. A. RICE.  
Associate Professor DALTON.  
Assistant Professor NEWTON.  
Assistant Professor GARDNER.  
Mr. PARKER.

1.—TOPOGRAPHICAL DRAWING.—A study of and practice in the conventional methods of representing topography, coupled with the platting of the results of field practice in connection with surveying. Required of Sophomore civil and mining engineering students. Second semester, six hours, Monday and Wednesday, or Thursday and Friday, 1:30 to 4:30. Three credits. Mr. Parker.

2.—SURVEYING. Engineer's instruments, their construction and adjustment. Methods of making and platting land, topographic, mining and hydrographic surveys. Sources of error and the means of controlling the precision of field work. Leveling and earthwork. Required of civil and mining engineering students. Sophomore, second semester, four hours, at 10:15, or 11:15, with field practice once a week. Five credits. Associate Professor Dalton, Assistant Professor Newton, and Mr. Parker.

3 or 53.—SUMMER FIELD WORK. Courses in practical surveying. The character of the work done will vary somewhat from year to year, depending upon the make-up of the body of students that go into camp. Ten hours per day for four weeks, at the close of the college year, in June. Associate Professor Dalton and assistants.

4.—STEREOTOMY. Required of civil engineering students. Sophomore, first semester, six hours, Monday and Wednesday, or Thursday and Friday, 1:30 to 4:30. Three credits. Mr. Parker.

50.—RAILWAY DRAWING. Railway plats, profiles and plans for track and small structures. Lectures and drawing-room practice in tracing and blue-printing and in platting the results of field work. Required of civil engineering students. Junior, first semester, six hours, Tuesday and Friday, 1:30 to 4:30. Three credits. Associate Professor Dalton.

51.—GRAPHICAL STATICS. The properties of equilibrium polygons and other methods of representing the actions of forces, with application to the determination of stresses in beams, roof-trusses, and stone arches. Lectures and drawing. Required of civil engineering students. Junior, second semester, six hours, Tuesday and Friday, 1:30 to 4:30. Three credits. Assistant Professor Gardner.

52.—CONTRACTS AND SPECIFICATIONS. An elementary course in the law of contracts, with special reference to engineering practice. The technical features of specifications. Methods of procedure in letting and conducting contract work, and the engineer's relation thereto. Required of all engineering students. Senior, second semester, (b), five hours, at 11:15. Two and one-half credits. Dean Marvin.

54.—HYDRAULIC CEMENT. A laboratory course in testing hydraulic cements and making comparison of their qualities. Reading, experimental work, and reports of tests made. Required of civil engineering students. Senior, second semester, four hours, Monday and Wednesday, 3:30 to 5:30. Two credits. Assistant Professor Gardner.

55.—MASONRY. Character of materials composing masonry. Methods of cutting and dressing stone. Foundations: Cribwork, cofferdams, caissons, piles and pile driving, concrete, pneumatic processes, etc. Required of civil engineering students. Senior, first semester, (a), five hours, at 8. Two and one-half credits. Assistant Professor Gardner.

56.—ROADS AND PAVEMENTS. A study of the materials for and methods used in the construction and improvement of country roads and city pavements. Earthwork, drainage, the road foundation, the wearing surface, etc. The economic importance of the "good-roads movement." Required of civil engineering students. Junior, second semester, two hours, at 9. Two credits. Associate Professor Dalton.

57.—RAILWAY LOCATION. The principles involved in an economic location and construction of railways. Analysis of traffic and operating expenses. The influence of proposed changes in location upon the amount of total revenue from traffic, the bonded debt and the corresponding fixed charges for interest, the operating expense, and the dividend-paying capacity of the road. Second semester, three hours, at 9. Three credits. Associate Professor Dalton.



58.—RAILWAY SURVEYING. A study of the methods of laying out and constructing railways. The setting out of simple and compound curves and calculation of excavation and embankments. Yards, turnouts, and switches. Easement curves of various types. Calculation of waterways, and methods of staking out foundations for culverts and bridges. This course must be preceded by a general course in surveying. Required of civil engineering students. Junior, first semester, four hours, at 10:15 or 11:15, with field practice one-half day per week. Five credits. Associate Professor Dalton.

59.—SEWERAGE. An elementary course in the collection, removal and disposal of city sewage. Separate and combined systems. Methods of flushing and ventilating sewers. Principles of the design and construction of sewers and storm drains; of man-holes, flushing devices, inlets, catch basins, inverted siphons, and other sewer appurtenances. Brief study of the purification of sewage by the standard processes. Two and one-half credit hours. First semester, (a), at 11:15. Two and one-half credits. Assistant Professor Gardner.

60.—WATER SUPPLY. An elementary course in the collection, purification and distribution of municipal water supplies. Requisites of a supply as to quality and quantity. Relation of water supply to public health. Sanitary surveys of sources of supply. Collection of water from rivers, lakes, deep and shallow wells, and the design and construction of impounding reservoirs. Distribution systems; materials and design; fire protection; stand-pipes and elevated tanks. Brief study of the design and construction of settling basins, rapid and slow sand filters, and other acceptable devices for the purification of water. Waterworks maintenance and operation; cleansing of water pipes; destruction of algæ in reservoirs. Five hours, first semester, (b), at 11:15. Two and one-half credits. Assistant Professor Gardner.

61.—ROOFS AND BRIDGES. Analytical and graphical calculation of stresses in framed structures under various forms of loading. This course must be preceded by course 51 in mechanics. Required of civil engineering students. Senior, first semester, ten hours, 1:30 to 3:30. Five credits. Associate Professor H. A. Rice.

62.—BRIDGE DESIGNING. A study in bridge details and the dimensions of parts. Students work out designs for a plate girder and a simple truss. Must be preceded by course 61. Required of civil engineering students. Senior, second semester, ten hours, 1:30 to 3:30. Five credits. Associate Professor H. A. Rice.

63.—ENGINEERING MATERIALS. A study of the methods of manufacture of structural materials and the different means and

machines used in their testing. Opportunity will be given for specialization along some particular line, if desired, and considerable experimental work may be done in the laboratory. Recitations, lectures, library and laboratory work. Optional for Seniors. Five hours, second semester, by appointment. Five credits. Assistant Professor Corp.

64.—**SANITARY ENGINEERING DESIGN.** An advanced course, to follow courses 59 and 60. A more detailed study of the principles of good design of engineering works for sewerage and drainage; for the purification of public water supplies; and for the treatment of city sewage and of industrial wastes. Lectures, recitations and library reading; drawing-board designs of typical constructions; visits to sanitary engineering works. Senior, five hours, second semester, at 8. Five credits. Associate Professor Hoad.

65.—**REINFORCED CONCRETE.** A course of study in the modern theory and practice of the design of beams, floor slabs, columns, retaining walls, conduits, arches, and other forms of reinforced concrete construction. Mathematical theory, study of plans, and design of typical structures. Second semester, (b), five hours, at 9. Two and one-half credits. Assistant Professor Gardner.

66.—**MAINTENANCE OF WAY.** An advanced course in railway engineering. Optional for Seniors. Second semester, five hours, at 8. Five credits. Associate Professor Dalton.

67.—**MUNICIPAL ENGINEERING DRAWING.** A drawing-room course dealing with city maps and plats, street profiles and cross-sections, sewerage and drainage maps, standard plans for street pavements, street intersections, catch basins, storm-water drains, concrete bridges, and other work commonly found in a city engineer's office. First semester, six hours, Monday and Wednesday, 1:30 to 4:30. Three credits. Assistant Professor Gardner.

68.—**STREET CLEANING AND GARBAGE COLLECTION AND DISPOSAL.** A series of lectures extending through the term. A detailed study of methods and costs of cleaning the various forms of street surfaces. A study of modern methods of collecting and disposing of garbage, with reference to the sanitary principles involved as well as the financial aspects of the problem. Second semester, Monday, at 3:30. One credit. Associate Professor Hoad.

69.—**SANITARY SCIENCE AND PUBLIC HEALTH PROBLEMS.** It is the object of this course to present a broad and general view of the large body of sanitary science upon which the modern practice of sanitation is based. The effects of good practice in such matters as public water supply, sewerage and drainage, state and federal control over the pollution of streams, the elimination of

dust and mud and snow from city streets, and the ventilation of public buildings, are studied. First semester, (a), five hours, at 11:15. Two and one-half credits. Associate Professor Hoad.

70.—SANITARY ENGINEERING LABORATORY. A laboratory course to be pursued in connection with experiment station work in water or sewage purification. This course is especially designed to acquaint the student with quick approximate methods of testing sewage effluents and of securing information relative to the controlling characteristics of water supplies. First semester, two hours, Tuesday, 3:30 to 5:30. One credit. Assistant Professor Gardner.

71.—SURVEYING. A briefer course than number 5, primarily for Senior electrical engineering students. First semester, three hours, at 11:15. Three credits. Mr. Parker.

72.—SANITARY INSPECTION AND REPORTS. Visits to neighboring engineering works of sanitary interest, particularly water-works and water and sewage purification plants, and to various municipal works in process of construction. By appointment. Associate Professor Hoad.

For other courses in civil engineering, see "The College."

## ELECTRICAL ENGINEERING.

Professor SHAAD.  
Mr. JOHNSON.  
Mr. ———.

Courses 50 to 52, and 54 to 58, inclusive, and 60 and 61 are required of all electrical engineering students. Courses 50, 51, 54, 55, and 63, are required of mechanical engineering students. Courses 59 and 62 are optional for electrical engineering students.

50.—DYNAMO MACHINERY. Theory of direct-current generators and motors. Prerequisites, physics 1E and 2E. Junior, first semester, three hours, at 10:15. Three credits. Mr. Johnson.

51.—THEORY OF ALTERNATING CURRENTS. A mathematical treatment of alternating-current phenomena and the theory of alternating-current machinery. Fundamental types. Prerequisite, course 52. Junior, second semester, five hours, at 11:15. Five credits. Professor Shaad.

52.—DYNAMO MACHINERY. Advanced theory of alternating-current machinery. Senior, first semester, five hours, daily, at 8. Five credits. Professor Shaad.

54.—ELECTRICAL LABORATORY. An experimental course for the purpose of illustrating the principles of direct-current dynamo machinery and acquainting the student with the types and per-

formance of direct-current apparatus. Course 50 required, or to be taken simultaneously. Junior, first semester, four hours, two days per week on alternate weeks, 1:30 to 5:30. Two credits. Mr. Johnson.

55.—ELECTRICAL LABORATORY. A continuation of course 54. Course 51 required, or to be taken simultaneously. More advanced work with direct-current machinery is given and experiments with alternating-current apparatus are introduced. Some time is devoted to the calibration of electrical instruments. Junior, second semester, four hours, two days per week on alternate weeks, 1:30 to 5:30. Two credits. Mr. Johnson.

56.—ELECTRICAL LABORATORY. Advanced experiments with electrical machinery and the testing of machines, chiefly of alternating-current types. Senior, first semester, three hours, two days per week, 1:30 to 4:30. Three credits. Course 52 to be taken simultaneously. Professor Shaad.

57.—ELECTRIC LIGHTING. A course in illumination and photometry in which the available light sources are studied, and the methods of application to artificial illumination of streets and buildings are discussed. Laboratory and field work in the measurement of light sources and illumination is given. Senior, second semester, (a), five hours, at 11:15. Two and one-half credits. Mr. Johnson.

58.—ELECTRIC POWER TRANSMISSION. A series of lectures and recitations devoted to the study of the principles involved and the methods used in the design of transmission and distributing systems. Course 52 required. Senior, second semester, (a), five hours, at 9. Two and one-half credits. Professor Shaad.

59.—ELEMENTARY TELEPHONY. Lectures, recitations, and laboratory work. This course develops the principles that underlie all telephone apparatus and gives practical experiments with the fundamental telephone transmitters, receivers and central-station arrangements. Junior or Senior optional, second semester, five hours, by appointment. Five credits. Mr. ———.

60.—ELECTRIC RAILWAYS. The theory and practice of the design, construction and operation of electric railway systems. Course 58 required. Senior, second semester, (b), five hours, at 9. Two and one-half credits. Professor Shaad.

61.—PROFESSIONAL THESIS. Senior, first semester, two hours, and second semester, six hours, by appointment. Professor Shaad, or other instructors, according to the line of work chosen.

62.—ELECTRICAL ENGINEERING PRACTICE. This course consists in the discussion of practical engineering problems as presented to the professional engineer and the determination of the



most suitable electrical machinery to be selected for the work to be done. The course is complementary to mechanical engineering 59. Senior optional, second semester, three hours, at 10:15. Three credits. Mr. Johnson.

63.—ALTERNATE CURRENT MACHINERY. A special course for mechanical engineering Seniors, and supplemental to course 51. Two hours, first semester, at 11. Two credits. Professor Shaad.

### ENGLISH LANGUAGE AND LITERATURE.

Assistant Professor RAYMOND.  
Assistant Professor GARDNER.  
Mr. SCHULTZ.  
Mr. STELTER.

The instruction in this department, while parallel to that in the College, and having the same general aim, is designed especially to accord with the other work of the engineering students. The three courses here numbered are required before graduation; for students who wish to spend more time in this kind of work the research class is provided, and the appropriate classes in the College are open.

1E.—RHETORIC. Written exercises and papers, with study of language usage. Required of all Freshmen. First semester, three hours, at 8, 9, 10:15, 11:15, 3:30, and 4:30. Three credits. Assistant Professor Raymond, Assistant Professor Gardner, Mr. Schultz, and Mr. Stelter.

2E.—RHETORIC. Continuation of course 1. Second semester, two hours, at 8, 9, 10:15, 11:15, 3:30, and 4:30. Two credits. Assistant Professor Raymond, Assistant Professor Gardner, Mr. Schultz, and Mr. Stelter.

50E.—ADVANCED COMPOSITION. Practice in the gathering and analyzing of material, and in the presentation of information and opinion in scientific papers, and study of the methods used in these and other papers. Required of all students, one term in Junior and Senior year, three hours: first semester, at 8; second semester, at 9. Three credits. Assistant Professor Raymond.

INDEXING AND RESEARCH IN THE LITERATURE OF ENGINEERING SCIENCE. Informal class, with headquarters in the office of this department, meeting once a week for conference, and working in the material of the engineering library.

The department of English is provided with references, illustrative matter and other helps for reading in general and in engineering literature, and in the preparation of special papers.

## GEOLOGY.

Professor HAWORTH.  
Assistant Professor TODD.  
Assistant Professor TWENHOFEL.

1.—ELEMENTARY GEOLOGY. A study of the elementary principles of geology, including a general outline of geologic principles and geologic agencies. An acquaintance with the elements of chemistry, zoölogy and botany will be of advantage in this course. Required of Junior civil and Sophomore mining engineers. First semester, five hours, at 9, 10:15, 11:15, or 2:30; second semester, at 8, 9, 10:15, or 11:15. Five credits. Professor Haworth, Assistant Professor Todd, and Assistant Professor Twenhofel.

52.—ECONOMIC GEOLOGY I. A general study of the metallic and nonmetallic products of the mine and quarry, considered from a scientific and a practical standpoint, including the nature, origin, amount and geographic and geologic distribution of the same. Must be preceded by elementary chemistry and course 1, or mineralogy 1E. Required of Junior mining engineers. First semester, lectures and library work, three hours, Monday, Wednesday, and Friday, at 9. Three credits. Professor Haworth.

53.—ECONOMIC GEOLOGY II. A continuation of course 52. Nonmetallic products. Second semester, two hours, Tuesday and Thursday, at 10:15. Two credits. Professor Haworth.

Other courses in geology are open as optionals to engineering students. For details, see the courses in "The College."

## GERMAN.

Associate Professor ENGEL.  
Assistant Professor BRIGGS.

1.—OUTLINE OF GRAMMAR. The first twenty-two lessons of Carruth's Otis's Grammar, with composition exercises; Carruth's Reader, about fifty pages. First semester, five hours, at 9. Five credits. Associate Professor Engel and Assistant Professor Briggs.

2.—READER AND GRAMMAR. The last eight lessons of Carruth's Otis's Grammar; Carruth's Reader completed; Hoyse's Die Blinden as a basis for narrative and conversation, and Schiller's Wilhelm Tell. Second semester, five hours, at 1:30. Five credits. Assistant Professor Briggs.

3.—GERMAN PROSE. Lessing's Minna von Barnhelm; extracts from Schiller's Der dreiszigjährige Krieg, preceded by a review of grammar. First semester, five hours, at 8. Five credits. Associate Professor Engel and Assistant Professor Briggs.

4.—SCHILLER'S WALLENSTEIN; SCIENTIFIC PROSE. Second semester, five hours, at 10:15. Five credits. Associate Professor Engel.

### MATHEMATICS.

Professor YOUNG.

Associate Professor VAN DER VRIES.

Assistant Professor PITCHER.

Assistant Professor WHITE.

Mr. FRIZELL, Instructor.

Mr. HESS, Instructor.

2.—COLLEGE ALGEBRA. Rapid review of elementary algebra; graphic representation; logarithms; determinants; theory of equations; Horner's method of approximation. Required of all Freshmen in the School of Engineering. Ashton's College Algebra, or Rietz and Crathorne's College Algebra. Both semesters—first semester, three hours, at 8, 9, 10:15, 11:15, 2:30, or 3:30; second semester, three hours, at 2:30 or 3:30. Three credits. Assistant Professor Pitcher, Mr. Frizell, and Mr. Hess.

3.—PLANE TRIGONOMETRY. The six trigonometric functions; principal formulas of plane trigonometry; solution of triangles and practical problems. Required of all Freshmen in the School of Engineering. Ashton's Trigonometry. Both semesters—first semester, two hours, at 8, 9, 10:15, 11:15, 2:30, or 3:30; second semester, two hours, at 1:30 or 3:30. Two credits. Assistant Professor Pitcher, Mr. Frizell, and Mr. Hess.

4.—ANALYTICAL GEOMETRY I. The straight line and circle; loci problems. Required of all Freshmen in the School of Engineering. Ashton's Analytical Geometry. Both semesters—first semester, two hours, at 9 or 10:15; second semester, two hours, at 8, 9, 10:15, 11:15, or 2:30. Two credits. Associate Professor Van der Vries, Assistant Professor Pitcher, Assistant Professor White, Mr. Frizell, and Mr. Hess.

5.—CALCULUS I. Differential calculus; fundamental principles; derivatives; applications to geometry and mechanics; maxima and minima; indeterminates; series. Required of all Freshmen in the School of Engineering. Granville's Calculus. Both semesters—first semester, three hours, at 9 or 10:15; second semester, three hours, at 8, 9, 10:15, 11:15, or 2:30. Three credits. Associate Professor Van der Vries, Assistant Professor Pitcher, Assistant Professor White, Mr. Frizell, and Mr. Hess.

6.—ANALYTICAL GEOMETRY II. Conic sections; higher plane curves; solid analytics. Required of all Sophomores in the School of Engineering. Ashton's Analytical Geometry. Both semesters—first semester, two hours, at 9, 10:15, or 11:15; second semester, two hours, at 9 or 10:15. Two credits. Associate Professor Van der Vries, Assistant Professor Pitcher, and Mr. Frizell.

7.—CALCULUS II. Integral calculus; integration; definite integrals; applications to lengths, areas, and volumes. Required of all Sophomores in the School of Engineering. Granville's Calculus. Both semesters—first semester, three hours, at 10:15, or 11:15; second semester, three hours, at 9 or 10:15. Three credits. Associate Professor Van der Vries, Assistant Professor Pitcher, and Mr. Frizell.

9E.—CALCULUS III. Application of calculus to problems in solid geometry; centers of gravity; moments of inertia; differential equations. Required of all Sophomores in the electrical and mechanical engineering courses. Granville's Calculus. Both semesters—first semester, two hours, at 9; second semester, two hours, at 10:15 and 11:15. Two credits. Associate Professor Van der Vries and Assistant Professor Pitcher.

For other courses in mathematics, see "The College."

### MECHANICS.

Associate Professor H. A. RICE.  
 Assistant Professor HOOD.  
 Assistant Professor CORP.  
 Assistant Professor COCHRAN.  
 Assistant Professor NEWTON.  
 Mr. PARKER.  
 Mr. WHITE.

1.—ELEMENTARY MECHANICS. An elementary course, requiring some knowledge of elementary physics and trigonometry. Freshman, first semester, two hours, Tuesday and Thursday, at 8, 9, 10:15, 11:15, 3:30, or 4:30. Two credits. Assistant Professors Hood, Cochran, and Newton, and Mr. Parker.

50.—MECHANICS. A study of the laws of statics and dynamics. Action of forces upon bodies and the resulting motions. Required of all engineering students. Senior for mining engineers, Junior for all others. First semester, five hours, at 8 or 9. Five credits. Associate Professor H. A. Rice and Assistant Professor Newton.

51.—STRENGTH OF MATERIALS. The theory of resistance to stress and application to engineering construction. Required of all engineering students. Senior for mining engineers, Junior for all others. Second semester, four hours, at 8 or 10:15. Four credits. Associate Professor H. A. Rice, and Assistant Professor Newton.

52.—TESTING OF MATERIALS. A laboratory course to accompany course 2. The testing of iron, steel, wood and other materials of construction for resistance to tension, compression, torsion, bending, and shearing. Experimental determination of the limits of safe loading. The testing of paving brick. For all engineering students. Senior for mining engineers, Junior for



all others. Second semester, four hours, Monday, Wednesday, Thursday, or Friday afternoon, or Saturday morning. Two credits. Assistant Professor Corp, and Mr. White.

53.—HYDRAULICS. A study of the laws governing the pressure and flow of liquids and gases and the force of and resistance to their motion. Required of civil and mechanical and optional for mining engineering students. Senior, first semester, (a), four hours, at 10:15. Two credits. Assistant Professor Corp, and Mr. White.

54.—HYDRAULIC LABORATORY. A course to accompany course 53 and the course in hydraulic machinery. Experimental work with the flow of water over weirs, through orifices and pipes, and in testing hydraulic machinery. Required of civil and mechanical engineering students. Senior, first semester, two hours, Monday, Wednesday, or Friday, 3:30 to 5:30. One credit. Assistant Professor Corp, and Mr. White.

### MECHANICAL DRAWING.

Assistant Professor HOOD.  
Assistant Professor NEWTON.  
Assistant Professor COCHRAN.

1.—FREE-HAND DRAWING. Engineering lettering in pencil and in ink. Free-hand working sketches of simple machine parts. Required of all engineering students. Freshmen, first six weeks of first semester, six divisions; Monday, Wednesday and Friday, 8 to 10, 10:15 to 12:15, 1:30 to 3:30, 3:30 to 5:30, Tuesday and Thursday from 1:30 to 3:30 and Saturday 8 to 10, or Tuesday and Thursday from 3:30 to 5:30 and Saturday 10 to 12, six hours. One credit. Assistant Professors Hood, Cochran, and Newton.

2.—ELEMENTARY MECHANICAL DRAWING. Revolution of geometrical solids. Working drawings of simple machine parts. Penciling, tracing, and blue-printing. Detailing machine parts from assembly drawings. Each student uses his drawings as made in this course in the pattern and machine shops. Required of all engineering students. Freshman, last fourteen weeks of first semester, same hours as in course 1, six hours. Two credits. Assistant Professors Hood, Cochran, and Newton.

3.—DESCRIPTIVE GEOMETRY. Principles of projection. Execution of a number of original exercises. Required of all engineering students. Freshman, second semester, three hours, at 8, 9, 10:15, 11:15, 2:30, or 3:30. Three credits. Assistant Professors Hood, Cochran, and Newton.

4.—MACHINE DRAWING. Sketching of machine parts and preparation of working drawings; detailing of machines from sketches, notes, assembly drawing and assembled machines; trac-

ing and blue-printing; notes and lectures on drafting-room methods. Each student prepares complete drawings for some simple machine. Required of all engineering students. Freshman, second semester, same hours as in course 1, six hours. Three credits. Assistant Professors Hood, Cochran, and Newton.

### MECHANICAL ENGINEERING.

Professor WALKER.  
Assistant Professor CORP.  
Assistant Professor SLUSS.  
Mr. WHITE.  
Mr. SNEETHERS.

1.—MACHINE DRAWING. Making of working drawings from sketches of assembled parts, followed by an assembly drawing from detailed working drawings. Required for mechanical, electrical, mining and chemical engineers. Sophomore, first semester, analytical and graphical solution of problems in the design of machine parts, transmission and hoisting devices. For mechanical engineers. Text, Elements of Machine Design, by Kimball and Barr. Monday and Wednesday or Thursday, 1:30 to 4:30, and Saturday, 9 to 12, six hours. Three credits. Assistant Professor Sluss.

2.—KINEMATICS. A study of the motion of machine parts and of methods of transmission of motion by gears, belts, cams, etc. Recitations and drawing for mechanical and electrical students. six hours. Text, Dunkerley's Mechanism. Sophomore, second semester, Monday and Wednesday, or Tuesday and Thursday, 1:30 to 4:30. Three credits. Assistant Professor Sluss.

50.—STEAM-ENGINE DESIGN. Valve-gear designing; the design of a shaft inertia governor; analysis of forces due to steam pressure; crank-effort diagrams and fly-wheel design. Text, Halsey's Valve Gears. Senior, first semester, four hours, Tuesday, 1:30 to 5:30. Two credits. Assistant Professor Sluss.

51.—MACHINE DESIGN. A course covering the generally accepted methods of designing machine parts, power transmission systems, hoisting apparatus, etc. The time is divided between the classroom and the drafting room. Text, Benjamin's Machine Design and Kent's Handbook. Junior, second semester, three hours, Monday and Wednesday, at 9, and Friday, 1:30 to 3:30. Three credits. Assistant Professor Sluss.

52.—DESIGNING. An advanced course devoted to special selected problems from the following: Steam turbines, compound steam engines, gas engines, steel-mill building construction, traveling cranes, refrigerating plant, central heating systems. Senior, second semester, ten hours, Monday, Tuesday, and Thursday, 1:30 to 5. Five credits. Professor Walker.

3.—STEAM MACHINERY. (a) Fuels, combustion, and steam generation. (b) A study of boiler and engine types, and engine

mechanism. Principal text, Kent's Steam Boiler Economy. Sophomore, second semester, two hours, Monday and Wednesday, at 10:15 or 11:15. Two credits. Assistant Professor Sluss.

53.—ENGINES AND BOILERS. A brief study of the general problem of steam-power generation from the standpoint of the installing engineer. Text, Heat Engines, by Allen and Bursley. Required of civil engineering students. Junior, second semester, Tuesday, Thursday, and Friday, at 11:15, and five exercises in the steam laboratory on Saturday, 8 to 12. Four credits. Professor Walker and Mr. Bohnstengel.

54.—HEATING AND VENTILATION. Laws of heat transfer; amount of air required for ventilation; methods and apparatus employed in modern buildings; central heating plants. Senior, second semester, two hours, at 9. Two credits. Professor Walker.

55.—GAS-ENGINE DESIGN. Power, efficiency and economy of the gas engine; study of the forces produced by gas pressure and inertia; structural design. Text, Lucke's Gas-engine Design. Senior, first semester, (b), four hours, Wednesday, 1:30 to 5:30. Two credits. Professor Walker.

56.—HYDRAULIC MACHINERY. A study of types of pumping machinery, with special reference to city water supply, sewerage and irrigation plants. The questions of first cost and maintenance of plant and economy in operation are fully discussed. Also, a study of water-power development. Lectures, assigned reading, and reports. Senior, first semester, (b), four hours, at 10:15. Two credits. Assistant Professor Corp and Mr. White.

57.—THERMODYNAMICS. A study of the relations between heat and mechanical energy; theory of heat engines. Must be preceded by physics 1E and 2E and calculus. For Senior mechanical engineering students the text is Peabody's Thermodynamics. First semester, (a), five hours, at 9. For electrical engineering students the course will include a study of the actual steam engine. Texts, Benjamin's Steam Engine and Moyer's Steam Turbines. First semester, four hours, at 11:15. Four credits. Professor Walker.

58.—ADVANCED STEAM ENGINEERING. Study of heat losses in the steam engine; compounding; superheating; jacketing; the steam jet; design of the steam turbine. Texts, Moyer's Steam Turbines and Peabody's Thermodynamics. Senior, first semester, (b), five hours, at 9. Two and one-half credits. Professor Walker.

59.—ENGINEERING PRACTICE. Modern industrial plant organization, cost accounting and plant management; comparative study of power costs with different prime movers. Lectures, assigned reading and problems. Senior, second semester, two

hours, Tuesday and Thursday, at 10:15. Two credits. Professor Walker.

60.—ENGINEERING LABORATORY. (a) Theory and use of planimeters; calibration of apparatus; cement testing; valve setting; (b) for Senior electricals, efficiency tests of steam boiler and engine, injector, and gasoline engine, with complete thermal analysis. (b) For Junior mechanicals, flue gas analysis, proximate analysis of coal, coal calorimetry, and tests for physical properties of lubricating oils. First semester, four hours, Tuesday or Thursday, 1:30 to 5:30. Two credits. Assistant Professor Corp and Mr. Bohnstengel.

61.—ENGINEERING LABORATORY. Complete testing of lubricants; efficiency tests of steam boilers, steam engines (with Hirn's analysis), steam pumps, gas engines, air compressors, etc. Chart study of steam-plant efficiency. Special subjects for investigation are assigned, to test the student's capacity for original work. Senior, second semester, four hours, Wednesday, 1:30 to 5:30. Two credits. Professor Walker.

62.—MECHANICS OF THE STEAM ENGINE. Course outlined in course 50 is followed through for a particular engine, together with the design of the engine parts. Also, problems in the mechanical transmission of power. Required for electrical students. Text, "The Steam Engine," by Benjamin, and special notes. Junior, second semester, three hours, Monday, Wednesday and Friday, at 8. Three credits. Assistant Professor Sluss.

63.—THESIS WORK. Senior, first semester, Thursday, 1:30 to 3:30; second semester, Friday, 1:30 to 5:30. Three credits. Professor Walker.

64.—SUMMER VACATION WORK. Two months to be spent in regular work in some shop or manufacturing plant of good standing. A report on this work, with a certified statement from the shop foreman or the superintendent, must be presented before credit can be given.

For courses open to graduate students, see Graduate School.

## METALLURGY.

Assistant Professor McFARLAND.

57.—ASSAYING AND METALLURGICAL ANALYSIS. The fire assay of ores of gold, silver and lead, followed in the second half semester by the volumetric analysis of ores of copper, zinc, lead, manganese, etc., and by coal and flue gas analysis. Lodge's Notes on Assaying and Low's Technical Methods of Ore Analysis. Must be preceded by chemistry 54 and mineralogy 1E. Second semester, ten hours, 3:30 to 5:30, and by appointment. Five credits. Assistant Professor Teague and assistant.



61.—METALLURGY I. General metallurgy and metallurgy of iron and steel. Must be preceded by chemistry 3. Required of mechanical engineers, Junior, and chemical engineers, Senior; optional in the College, and for mining engineers, Senior. First semester, five hours, daily, at 11:15. Five credits. Assistant Professor Teague.

62.—METALLURGY II. Metallurgy of lead, zinc, and copper, followed by metallurgy of silver, gold, mercury, and tin. Study of principal ores and methods of extraction and refining, amalgamation, chlorination and cyanide processes, pyritic smelting, etc. Must be preceded by chemistry 3. Required of mining engineers, Senior. Optional in the College, and for chemical engineers, Senior. Second semester, five hours, daily, at 11:15. Five credits. Assistant Professor Teague.

63.—METALLURGICAL LABORATORY. This course includes pyrometric and calorimetric measurements, preparation of silicates and alloys, oxidation and reduction reactions, amalgamation, chlorination, cyaniding and leaching, etc. Open to Juniors, Seniors and graduate students who have taken or are taking metallurgy 61 or 62. Either semester, two hours, by appointment. Assistant Professor Teague.

### MINERALOGY.

Professor HAWORTH.  
Assistant Professor TODD.

1E.—ELEMENTARY MINERALOGY I. A brief course in crystallography, blowpipe analysis, and systematic mineralogy, consisting of lectures and laboratory work. Sophomore, second semester, five hours, 3:30 to 5:30. Five credits. Assistant Professor Todd.

Other courses in mineralogy are open to engineering students as optionals. For these, see "The College" list of courses.

### MINING ENGINEERING.

Professor HAWORTH.  
Associate Professor YOUNG.

50.—MINING. Underground surveying, to be supplemented by field work. Excavation for mining purposes, quarrying, boring for gas, oil and water. Manufacture and use of explosives. Sinking of shafts, tunneling, support of underground excavations. Lectures and recitations. Required of students of mining engineering. Junior, first semester, five hours, at 8. Five credits. Associate Professor Young.

51.—ORE DRESSING. A study of all methods used for the separation and concentration of valuable minerals. Recitations, lectures, and laboratory work. Richard's Text Book of Ore

Dressing. Required of students of mining engineering. Junior, first semester, two hours, at 9, two credits; second semester, three hours, at 10:15, three credits. Associate Professor Young.

52.—POWER, EXTRACTION, DRAINAGE, VENTILATION. Steam, compressed air and electricity as applied to mining; mining hydraulics and the drainage of mines. Handling of ore underground and on the surface. Ventilation. Mine accidents. Required of students of mining engineering. Senior, first semester, five hours, at 10:15. Five credits. Associate Professor Young.

53.—SAMPLING AND EXPLOITATION. The best methods of sampling, developing and working mineral deposits, including studies of important mining districts. Required of students of mining engineering. Senior, second semester, (a), five hours, at 11:15. Two and one-half credits. Associate Professor Young.

54.—MINE PLANT. A study of the equipment necessary for the exploitation of mineral deposits and of important examples; building materials, foundations, mine buildings; the design of mine plants. Optional for students of mining engineering. Senior, second semester, five hours, at 9. Five credits. Associate Professor Young.

55.—MINE ADMINISTRATION. Mine accounts and management; care of sick and injured in case of accident; rules and regulations for equipping expeditions and maintaining camps. Optional for mining engineering students. Senior, first semester, (a), five hours, by appointment. Two and one-half credits. Associate Professor Young.

56.—COAL MINING. Methods of working coal beds and of handling coal. Properties of mine gases; safety lamp; explosives; ventilation; cause and prevention of explosions. May be substituted for mining 52. Open to students not enrolled in the course in mining engineering. Second semester, five hours, at 9. Five credits. Associate Professor Young.

57.—MINING LAW. A course outlining the laws relating to the mining industries. Recitations and lectures. Second semester, one hour, in alternate years. (Given in 1911.) Associate Professor Humble.

58.—PROFESSIONAL THESIS. This may be an elaborate description of a mining or metallurgical plant or of a mining district, or may be founded upon research work done at the University.

59.—SUMMER WORK. Each candidate for a degree is required to give evidence of having had experience in some phase of mining work. This may be gained by an investigation of some mining district under the direction of an instructor, or by obtaining employment in mining work.

## PHYSICS.

Professor KESTER.

Associate Professor M. E. RICE.

Assistant Professor STIMPSON.

Mr. SMITH.

1E.—GENERAL PHYSICS. A fundamental course of experimental lectures, recitations and problems. Prerequisites, plane trigonometry and some knowledge of analytical geometry and calculus. Sophomore, first semester, five hours, Monday, Tuesday, Wednesday, and Thursday, at 10:15 or 11:15, and two hours of laboratory per week. Five credits. Professor Kester, Associate Professor M. E. Rice, Assistant Professor Stimpson, and Mr. Smith.

2E.—GENERAL PHYSICS. A continuation of course 3. Sophomore, second semester, five hours, Monday, Tuesday, Wednesday, and Thursday, at 10:15 or 11:15, and two hours of laboratory per week. Five credits. Professor Kester, Associate Professor M. E. Rice, Assistant Professor Stimpson, and Mr. Smith.

52.—THEORY OF ELECTRICITY AND MAGNETISM. First semester, three hours, at 9. Three credits. Associate Professor M. E. Rice.

60E.—ELECTRICAL MEASUREMENTS I. A laboratory course coordinate with 52. First semester, four hours per week, by appointment. Two credits. Associate Professor M. E. Rice.

61E.—ELECTRICAL MEASUREMENTS II. Continuation of course 60E. Second semester, four hours, by appointment. Two credits. Associate Professor M. E. Rice.

For electrical courses in physics, see "The College" and "The Graduate School."

## ROMANCE LANGUAGES.

Professor GALLOO.

Associate Professor BASSETT.

Miss GARDNER.

*French.*

1.—ELEMENTARY FRENCH I. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation, accidence and easy syntax. Open to students who have had three years of Latin or German. First semester, five hours, at 1:30. Five credits. Miss Gardner.

Students who have had only two years of Latin or German form a section, meeting at 8.

2.—ELEMENTARY FRENCH II. A continuation of course 1. Reading of simple prose texts, with exercises in dictation and

elementary composition. Second semester, five hours, at 1:30. Five credits. Miss Gardner.

For advanced courses in French, see "The College."

*Spanish.*

1.—ELEMENTARY SPANISH I. An outline of grammar (Hills and Ford). Reading of short stories. Elementary composition. Open to students who have had three years of Latin, French or German. First semester, five hours, at 9, 11:15, or 1:30. Also second semester, five hours, at 2:30. Five credits. Associate Professor Bassett and Miss Gardner.

Students who have had only two years of Latin, French or German form a section, reciting during the fall term at 1:30.

2.—ELEMENTARY SPANISH II. Grammar and composition. Reading of easy modern prose: Carrión-Aza, Pérez, Galdós, Palacio Valdés, etc. Second semester, five hours, at 9, 11:15, or 1:30. Five credits. Associate Professor Bassett and Miss Gardner.

For advanced courses in Spanish, see "The College"

SHOP WORK.

Assistant Professor WARD.  
Assistant Professor JONES.  
Mr. BERKELEY.  
Mr. LANDRUM.

SHOP 1.—FORGING. The regular beginning course for students in engineering, consisting of working wrought iron, mild steel, and tool steel; pointing, heading, welding, etc.; making tool-steel tools, such as punches, cold chisels, lathe tools, and pliers. Short lectures are given when necessary on such subjects as smithing coal, the making of wrought iron and how to work it; also methods of working mild steel and tool steel. Five hours a week. Two and one-half credits. Mr. Berkeley.

SHOP 2.—PATTERN MAKING. This course consists of: (a) Descriptive lectures and demonstrations on the properties of wood; selection and comparative values of different woods; practical construction of patterns to prevent distortion by shrinkage or warping; the relation of the pattern to foundry practice; the allowance for draft, shrinkage, and finish; the use of cores and making of core boxes, etc. (b) The theory and practice of the use of hand tools used in pattern construction. (c) A comprehensive course of exercises in wood turning. (d) The making of two or more patterns of representative types, embracing all the essential features peculiar to pattern work, together with the necessary core boxes, prints, and appurtenances. Students applying for advanced standing in shop 2 or credit for manual training in high school will be required to take section (a) of



this course and an examination on same. Five hours a week. Two and one-half credits. Assistant Professor Jones and Mr. Landrum.

SHOP 3.—BENCH WORK. Exercise in filing, key fitting, drilling holes, riveting, chipping, and scraping to a true surface. Also, making calipers and side cutting pliers. This work brings in use the steel hand tools and pliers made in shop 1. Also the use of machine tools in drilling, grinding, and polishing. Foundry practice will be substituted for a part of this course. Five hours a week. Two and one-half credits. Assistant Professor Ward.

SHOP 4.—LATHE WORK. The use and testing of the tools which have been made in shop 1, centering work, turning on centers to fit standard gauges, turning tapers and curved surfaces, turning shafting, cutting threads, making small cap screws and set screws. Assistant Professor Ward.

SHOP 50.—LATHE AND MACHINE TOOL WORK. Making close fits with ordinary inside and outside calipers; cutting special screws and threads inside; machining, boring and reaming the cast-iron parts of machinery under construction, from blue prints and sketches. Five hours a week. Two and one-half credits. Assistant Professor Ward.

SHOP 51.—HEAVY LATHE WORK, PLANER AND MILLING-MACHINE WORK. Tool and jig making; grinding hardened work; making mandrels, reamers, taps, and special tools for the general shop use. Required only of mechanical engineering students. Five hours a week. Two and one-half credits. Assistant Professor Ward.

All materials used in shop work, except in courses 5 and 6 and the lathe tools made in course 1 and used in course 4, are purchased by the student with coupons which must be bought in advance at the office of the Secretary. The coal for courses in the forge shop must be paid for with coupons at the rate of one dollar for each course.

### TECHNICAL REPORTS AND THESES.

Reports upon subjects assigned by the special departments, required of all students, one in each semester of the Sophomore, one in the Junior and one in the Senior year; one thesis required of each student in the second semester of the Senior year.

Students assigned for technical reports must confer with instructors in charge concerning subjects on or before October 15 for the first semester and March 15 for the second semester. The finished reports must be in instructor's hands by January 15 and May 15 for the respective semesters.

Each report counts as one-half credit.

## IV. *The School of Fine Arts.*

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### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM H. CARRUTH, PH. D., Vice President, and Professor of Germanic Languages.

CHARLES S. SKILTON, A. B., Dean. Professor of History of the Fine Arts, Musical Theory, and Organ.

CARL A. PREYER, MUS. D., Professor of Piano, Musical Theory, Counterpoint, Canon, and Fugue.

CHARLES EDWARD HUBACH, Professor of Voice.

WILLIAM A. GRIFFITH, Professor of Drawing and Painting.

ALEXANDER M. WILCOX, PH. D., Professor of Greek Language and Literature.

CHARLES G. DUNLAP, LITT. D., Professor of English Literature.

EDWIN M. HOPKINS, PH. D., Professor of Rhetoric and English Language.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

JAMES NAISMITH, M. D., Professor of Physical Education.

FREDERICK E. KESTER, PH. D., Professor of Physics.

RAPHAEL D. O'LEARY,\* A. B., Associate Professor of English.

ELMER F. ENGEL, A. M., Associate Professor of German.

SELDEN L. WHITCOMB, A. M., Associate Professor of English Literature.

LOUIS E. SISSON, Associate Professor of Rhetoric.

HARRIET GREISINGER, MUS. B., Assistant Professor of Piano.

BLANCHE LYONS, Assistant Professor of Voice.

MAUDE B. COOKE, Assistant Professor of Piano.

WORT S. MORSE, Instructor in Violin.

MAUDE MILLER, MUS. B., Instructor in Piano.

LOUISE WIEDEMANN, MUS. B., Instructor in Piano.

GERTRUDE MOSSLER, Instructor in Expression.

ANNA L. SWEENEY, MUS. B., Instructor in Piano.

MARIA L. BENSON, A. B., Instructor in Design and Ceramics.

VEDA WALKER, Assistant Instructor in Expression.

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\* Absent on leave, 1910-'11.

## DEPARTMENTS.

The School of Fine Arts is made up of the following departments: (1) Music. (2) Drawing and Painting. (3) Expression.

## DEGREES.

The courses of study in the School of Fine Arts lead to the following degrees:

Master of music.

Bachelor of music.

Bachelor of painting.

Teacher's certificate of completion of two-year courses in music or expression.

## REQUIREMENTS FOR ADMISSION.

There are two methods of admission to the School of Fine Arts: First, by examination; second, by certificate.

### 1. BY EXAMINATION.

All students who cannot present certificates from accredited schools will be examined in the subjects required for entrance. The times and place of examination are set forth on page 114 of this catalogue.

### 2. BY CERTIFICATE.

Students will be admitted without examination on certificates from high schools or other preparatory schools, signed by the proper school officer. The general plan is the same as that noted under The College.

## UNITS REQUIRED FOR ADMISSION.

For admission to courses in drawing and painting, in expression, and in voice, the requirements are the same as for admission to The College.

For admission to the courses in violin and in piano and organ, twelve units of high-school work are required, and in addition candidates must satisfy the requirements noted under "Additional Requirements." The twelve units must include the following:

Three units in English from group I.

Two and one-half units in mathematics from group II.

Three units in foreign language from group III.

One unit in physical science from group IV.

Two and one-half units from any course remaining in the groups.

### ADDITIONAL REQUIREMENTS.

IN VIOLIN. Applicants must add to the general requirements stated above an ability to play correctly selections from the Wichtl School, book I, and from Kayser, Thirty-six Studies, book I.

IN PIANO AND ORGAN. The following course, intended to parallel the four years of high-school study, must be completed before admission to the Freshman year. Students who have nearly completed the course will be admitted with condition on recommendation of the head of the department. An examination in fourth year work is required. While the School of Fine Arts prefers this course of study, students who have been prepared with Lambert's or Mathews' Graded Studies, Mason's Touch and Technic, or other recognized methods, may offer them as a substitute.

#### FIRST YEAR—

##### STUDIES

Loeschhorn, Op. 65, Book I and II.  
Burgmuller, Op. 100.  
Koehler, Op. 50.  
Duvernoy, Op. 276.

##### PIECES.

Selections from "The Pianist's First and Second Years" (Schirmer), and pieces by Biedermann, Dennee, Bohm, and others.

#### SECOND YEAR—

Loeschhorn, Op. 65, Book III.  
Heller, Op. 47.  
Lemoine, Op. 37.  
Concone, Op. 24.

Selections from "The Pianist's First and Second Year" (Schirmer), and pieces by Gurlitt, Lichner, Von Wilm, and others.

#### THIRD YEAR—

Loeschhorn, Op. 66, Book I.  
Heller, Op. 47.  
Czerny, Op. 849.  
E. B. Perry, Wrist Studies.  
"Five Lyrical Pieces."

Selections from "The Pianist's Second and Third Year" (Schirmer), and pieces by Reinecke, Merkel, Schytte, and others. Sonatinas of Clementi, Kuhlau, Beethoven, Op. 49.

#### FOURTH YEAR—

Loeschhorn, Op. 66, Book II and III.  
Heller, Op. 46.  
Czerny, Op. 299, Book I and II.  
Preyer, Twelve Wrist Studies.

Hadyn Sonatas in C major or E minor; Mozart Sonatas in C major or G minor; Beethoven, Op. 79; Grieg, Lyrical Pieces, Op. 12; Schumann, Album for the Young; Pieces by Meyer-Helmund, Jensen, Dupont, and others.

IN VOICE AND VIOLIN. Applicants for the regular course in voice and violin must be able to play piano accompaniments of moderate difficulty. Any deficiency in this respect must be made up by private lessons.

IN LATIN. All students expecting to take German in the regular course must offer three units of Latin.



## SPECIAL STUDENTS.

Students need not be deterred from seeking to enter the School of Fine Arts of the University because they cannot satisfy all the requirements for full admission to that school. Those requirements are for persons who are candidates for a degree in music, expression, or painting. All persons who desire to pursue a special line of work, without conforming to the requirements for entrance, or following a prescribed course, may apply for admission to the School of Fine Arts as special students. The admission of such persons is under the control of the Dean, to whom they should apply, and whose certificate of acceptance must be presented to the Registrar before registration. Special students are expected to take the equivalent of twelve hours' work.

Applicants for standing as special students must present satisfactory evidence of proper preparation for the studies desired. Special students are subject to the same regulations as regular students as to quality of work, attendance at recitations, and examinations, if they desire credit toward a degree.

## ENSEMBLE PLAYING.

An ensemble class meets for the study of concerted music. Four- and eight-hand piano music is studied, and trios are played with violin and violoncello. Thus pupils become acquainted with many masterpieces which are often inaccessible to music students, and acquire habits of sight-reading and accompanying, which are invaluable to the musician. Advanced students also have the opportunity of playing concertos with the University orchestra.

## THE NORMAL CLASS.

Attendance at the normal class is required of Sophomores in the piano department. The first semester the leading methods of piano instruction are examined and practically demonstrated. The second semester the voice, organ and orchestra are examined, and especial attention is given to sight singing. During both semesters there is practice in writing melodies from dictation.

## GENERAL.

It is required of all candidates for a degree that the last two years be spent in residence at the University.

During the first two years piano students will take their lessons from an assistant. In the third and fourth years all piano lessons are with Professor Preyer, but no student will be admitted who has not completed the work of the preceding year. Students in the artists' course receive two lessons a week;

students in the collegiate course may choose between one private lesson or two lessons in classes of four.

Students who are behind in piano at the end of the second year will have to become special students in piano until the work is made up before they take any of the studies of the third year.

Voice students may take their lessons during the first two years either with Professor Hubach or Mrs. Lyons. In the last two years all voice lessons are with Professor Hubach.

Violin students are required to play in the University orchestra during their entire course, unless excused by the Dean on recommendation of the instructor.

The year is divided into four quarters, two quarters in each term.

The school does not furnish pianos for practice at the building, except a piano with organ pedals, but instruments can be rented in town for from three to five dollars a month, and grand pianofortes at from seven to ten dollars a month. Pianos rented of private persons, or in connection with board, may often be secured at even lower rates. Several students sometimes unite in renting an instrument, thus materially reducing the expense.

Students in drawing and painting will be required to furnish their own materials, except easels and drawing boards.

All art work, when finished, is under the control of the instructors until after the close of the public exhibition of student work, at the end of the academic year.

### EQUIPMENT.

**IN MUSIC.** The department of music of the University occupies a building of its own—North College. The down-town music studios, in the Dick building, are used by the assistant instructors and by the department of expression. The school is well equipped with pianos, including six concert grands; a three-manual pipe organ, built by King & Sons, Elmira, N. Y.; a piano with organ pedals; charts for sight-reading, and a Victor gramophone with musical records.

**IN DRAWING AND PAINTING.** The department of drawing and painting offers instruction in free-hand drawing in charcoal, pencil, and pen and ink; painting in oil and water colors from still life, the living model, the landscape; ornamental design, perspective, pictorial composition, and ceramics. In the fall of 1911 the studios of the department of drawing and painting will be moved to the rooms constructed for the use of this department in the new Administration building. There are six large, top-lighted studios, together with storerooms, locker rooms and toilet rooms. The department is well equipped with objects used in teaching drawing and design, together with a large library.

**THE LIBRARY.** The University library contains a good collection of works on art, including art exposition and criticism, musical history, vocal and orchestral scores of operas, symphonies, chamber music, oratorios and cantatas, pianoforte and organ music, and collections of standard merit. This collection is annually increased.

### CONCERTS AND RECITALS.

Concerts are frequently given in Recital Hall and in University Hall by the faculty and advanced students. Concert courses which are arranged for at the University, and the nearness of Lawrence to Kansas City and Topeka, afford students an opportunity to hear many noted musicians.

Recitals are given monthly by the students of the school, at which works studied in the classroom are performed before a small audience of fellow students and their friends. Every student is required to attend these recitals and all concerts, and take part in the programs at least twice a year, and to present each term a record of attendance. These semipublic appearances are of great assistance in enabling the student to acquire the ease and self-possession so essential to a successful public performance.

Towards the end of the academic year a music festival of two days' duration is given, in which a leading orchestra and noted soloists take part with the Festival Chorus, and several masterpieces of choral and orchestral music are rendered.

### ART EXHIBITIONS.

An annual exhibition of works of art is held at the University, together with a course of lectures upon subjects related to the fine arts. The exhibition was not held in 1910 but will be held in 1911. At the close of the year there is held an exhibition of work done by pupils of the department of drawing and painting.

### EXPENSES.

By legislative enactment, a matriculation fee of five dollars (to be paid but once) must be charged each student of Kansas entering the School of Fine Arts. Nonresidents of Kansas must pay a matriculation fee of ten dollars.

The instructors in the School of Fine Arts receive compensation from the state for only part of the work of the courses, and the remainder must be paid for at rates indicated below.

All bills are payable quarterly in advance.

No fees will be refunded if the student leaves before the end of a half-term. The receipt of the treasurer of the School of Fine Arts must be presented each quarter to secure enrollment

for private lessons. No lessons are given during the week of the semiannual examinations.

Seniors of the music department except in the piano artists course pay \$1.00 per quarter concert fee.

Rates for regular students (two half-hour lessons a week):

First year *...	Piano, per quarter, lessons with assistants,	\$27 50
	Voice, per quarter.....	31 00
	Violin, per quarter.....	25 00
	Expression, per quarter.....	28 00
	Drawing and painting, per quarter.....	15 00
Second year..	Piano, per quarter.....	27 50
	Other rates the same as for first year.	
Third year...	Piano, per quarter:	
	Artists course .....	44 50
	Collegiate course .....	26 50
	Organ, per quarter.....	33 50
	Voice, per quarter.....	33 50
	Violin, per quarter.....	31 00
	Drawing and painting, per quarter.....	15 00
Fourth year..	Collegiate course free to Kansas students.	
	For nonresidents, the same as for the third year.	
	Artists course .....	16 00

#### RATES FOR SPECIAL STUDENTS.

Preliminary years and private lessons with assistants:

Piano, two lessons a week, per quarter...	\$17 00 and \$21 00
“ one lesson a week, per quarter....	9 00 and 11 00
Technic (in class).....	5 00
Teaching materials .....	5 00
Voice, two lessons a week, per quarter.....	18 00
“ one lesson a week, per quarter.....	10 00
Expression, two lessons a week, per quarter.....	15 00
“ one lesson a week, per quarter.....	10 00
Lessons with heads of departments (half-hour lessons).	
Piano, two lessons a week, per quarter.....	36 00
“ one lesson a week, per quarter.....	20 00
Voice, two lessons a week, per quarter.....	28 00
“ one lesson a week, per quarter.....	16 00
Organ, two lessons a week, per quarter.....	28 00
“ one lesson a week, per quarter.....	16 00
Violin or violoncello, two lessons a week, per quarter..	24 00
“ “ one lesson a week, per quarter...	12 00

\* First year music students who enter the second semester pay \$2.50 a quarter additional as long as they attend the three-hour harmony class.



Lessons with heads of departments (half-hour lessons) :

Harmony, counterpoint, composition, instrumentation—

Per quarter ..... \$28 00

In class ..... 10 00

Expression, two lessons a week, per quarter..... 25 00

“ one lesson a week, per quarter..... 15 00

Three lessons a week (hour lessons) :

Painting, in class, per quarter..... 15 00

Drawing, one lesson a week, eighteen weeks..... 7 50

## PROGRAM OF STUDIES.

### PIANOFORTE.

Leading to the Degree of Bachelor of Music.

#### ARTISTS' COURSE—COLLEGIATE COURSE.

These courses are identical in outline, but students in the artists' course are expected to do a larger amount of work, to maintain the highest grade in all musical subjects, and give a graduating recital. This is not required in the collegiate course, which is intended for those who wish to fit themselves for teachers or take music for personal culture rather than to become public performers. After the second year students are graded in the two courses according to their standing. Advanced students in French, German and Italian are allowed to substitute advanced courses for those offered below. See also paragraph "General" on page 255.

#### FRESHMAN YEAR.

##### *First Semester:*

Piano 1, twice a week, by appointment. Assistants.  
 Technic (Piano 9), once a week, by appointment. Miss Miller.  
 Harmony (Musical Theory 1), Tuesday and Thursday, at 2.  
 Professor Skilton.  
 Rhetoric 1, three hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Associate Professor Sisson, Assistant Professor Lynn, and instructors.  
 Physical Education 1, once a week, by appointment. Assistant Professor Fish.  
 History of Music, Thursday, at 4. Professor Skilton.  
 Recitals and Ensemble Playing.

##### *Second Semester:*

Piano 2, twice a week, by appointment. Assistants.  
 Technic (Piano 10), Wednesday, at 3. Miss Miller.  
 Harmony (Musical Theory 2), Tuesday and Thursday, at 2.  
 Professor Skilton.  
 Harmony (Musical Theory 1), Monday, Wednesday, and Friday, at 2. Professor Skilton.  
 Rhetoric 2, two hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Associate Professor Sisson, Assistant Professor Lynn, and instructors.  
 Physical Education 2, once a week, by appointment. Assistant Professor Fish.  
 History of Music, Thursday, at 4. Professor Skilton.  
 Recitals and Ensemble Playing.

## SOPHOMORE YEAR.

*First Semester:*

Piano 3, twice a week, by appointment. Assistants.  
 Technic (Piano 11), once a week, by appointment. Miss Miller.  
 Harmony (Musical Theory 3), Tuesday and Friday, at 3.  
 Professor Skilton.  
 Harmony (Musical Theory 2 and 3), Monday, Wednesday  
 and Friday, at 2. Professor Skilton.  
 Physical Education 3, once a week, by appointment. Assistant  
 Professor Fish.  
 English 10, two hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30,  
 and 3:30. Assistant Professors Gray and Johnson, and in-  
 structors.

Normal Class, Wednesday, at 4. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing.

One of the following optionals may be taken (private lessons  
 subject to fees):

Vocal Culture 1, by appointment. Professor Hubach or  
 Assistant Professor Lyons.

Free-hand Drawing. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1, daily, at 8, 9, 11:15, and 2:30. Associate Pro-  
 fessor Engel and Assistant Professor Corbin.

French 1, daily, at 8, 9, 11:15, and 2:30. Assistant Pro-  
 fessors Neuen Schwander and La Motte, and assistants.

Italian 1, three hours, at 11:15. Assistant Professor Ward.

Spanish 1, five hours, at 9, 11:15, or 1:30. Mr. Winter,  
 Miss Gardner, or Miss Enke.

Teaching Materials, twice a week, by appointment. As-  
 sistant Professor Greisinger.

*Second Semester:*

Piano 4, twice a week, by appointment. Assistants.

Technic (Piano 12), once a week, by appointment. Miss Miller.

Harmony (Musical Theory 4), Tuesday and Friday, at 3.  
 Professor Skilton.

Physical Education 4, once a week, by appointment. As-  
 sistant Professor Fish.

English 11, three hours a week, at 8, 9, 10:15, 11:15, 1:30,  
 2:30, and 3:30. Assistant Professors Gray and Johnson,  
 and instructors.

Normal Class, Wednesday, at 4. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing.

*Second Semester:* SOPHOMORE YEAR.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture 1, by appointment. Professor Hubach or Assistant Professor Lyons.

Free-hand Drawing. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30. Associate Professor Engel and Assistant Professor Corbin.

French 2, daily, at 8, 9, 11:15, and 2:30. Assistant Professor Neuen Schwander, Mr. Winter, and assistants.

Italian 2, three hours, at 11:15. Assistant Professor Ward.

Spanish 2, five hours, at 9 or 1:30. Mr. Winter or Miss Enke.

Teaching Materials, twice a week, by appointment. Assistant Professor Greisinger.

## JUNIOR YEAR.

*First Semester:*

Piano 5, twice a week, by appointment. Professor Preyer.

Composition (Musical Theory 7), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 5), Monday, at 3. Professor Preyer.

History of Music, Thursday, at 4. Professor Skilton.

English 12 *a* and *b*. HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions at 8, 9, and 10:15. Two-hour divisions at 11:15, 1:30, 2:30, and 3:30. Associate Professors Whitcomb and O'Leary, and Assistant professors Gray, Lynn, and Johnson.

Recitals.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture, by appointment. Professor Hubach or Assistant Professor Lyons.

Drawing and painting. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1 or 3, daily. Associate Professor Engel and Assistant Professor Corbin.

French 1 or 3, daily. Assistant Professor Neuen Schwander.

Italian and Spanish as in Sophomore year.



## JUNIOR YEAR.

*Second Semester:*

Piano 6, twice a week, by appointment. Professor Preyer.

History of Music, Thursday, at 4. Professor Skilton.

Composition (Musical Theory 8), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 5), Monday, at 3. Professor Preyer.

English 13 *a* and *b*. HISTORY OF ENGLISH LITERATURE. Two or three hours, second semester. Three-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions at 8 and 9. Associate Professors Whitcomb and O'Leary, Assistant Professors Lynn, Gray, and Johnson.

Acoustics, by appointment. (Not given in 1912.)

Recitals.

Thesis 1. Professor Skilton.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture, by appointment. Professor Hubach or Assistant Professor Lyons.

Drawing and Painting. Professor Griffith.

German 2 or 4, daily. Associate Professor Engel and Assistant Professor Corbin.

French 2 or 4, daily. Assistant Professor Neuen Schwan-der.

Italian and Spanish as in Sophomore year.

Expression 10, once a week. Miss Mossler.

Teaching Materials, twice a week, by appointment. Assistant Professor Greisinger.

## SENIOR YEAR.

*First Semester:*

Piano 7, twice a week, by appointment. Professor Preyer.

Canon and Fugue (Musical Theory 11), once a week, by appointment. Professor Preyer.

Recitals.

Thesis 2. Professor Skilton.

Optional, English 50, 76, and 78. Other optionals as in previous years.

Composition (Musical Theory 9), once a week by appointment. Professor Preyer.

*Second Semester:*

Piano 8, twice a week, by appointment. Professor Preyer.

Instrumentation (Musical Theory 12), once a week, Wednesday, at 3. Professor Skilton.

Thesis 3. Professor Skilton.

*Second Semester:*

## SENIOR YEAR.

Recitals.

Optional, English 77, 78, and 87. Other optionals as in previous years.

Composition (Musical Theory 10), once a week by appointment. Professor Preyer.

Teaching Materials, twice a week, by appointment. Assistant Professor Greisinger.

## GRADUATE COURSE.

Piano 14 and 15, a graduate course, is offered in pianoforte, leading to the degree of master of music (M. M.). The course is open only to graduates of the artists' course who have taken Senior composition work, and to graduates of other schools who have done a corresponding amount of work. In all cases an entrance examination will be insisted upon in both piano and musical composition. The examination will consist of the technic, studies, concertos, etc., and the composition work required for the completion of the Senior year, outlined above; and furthermore, grade I will be required of all applicants. A pianoforte recital is required upon completion of the course, and the performance of an original composition is one of the larger forms.

## ORGAN.

Leading to the Degree of Bachelor of Music.

Three-year course, open to those who have completed the work of the Freshman year in piano.

## SOPHOMORE YEAR.

*First Semester:*

Organ 1, once a week, by appointment. Professor Skilton.

Piano 3, once a week, by appointment. Assistant.

Technic (Piano 11), once a week, by appointment. Assistant.

Harmony (Musical Theory 3), Tuesday and Friday, at 3. Professor Skilton.

Physical Education 3, once a week, by appointment. Assistant Professor Fish.

English 10, two hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professors Gray and Johnson, and instructors.

Normal Class, Wednesday, at 4. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture, by appointment. Professor Hubach or Assistant Professor Lyons.

*First Semester:*

## SOPHOMORE YEAR.

One of the following optionals may be taken (private lessons are subject to fees):

Free-hand Drawing. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1, daily, at 8, 9, 11:15, and 2:30. Associate Professor Engel and Assistant Professor Corbin.

French 1, daily, at 8, 9, 11:15, and 2:30. Assistant Professor Neuen Schwander.

Italian 1, three hours, at 1:30. Assistant Professor Ward.

Spanish 1, five hours, at 9, 11:15, or 1:30. Mr. Winter, Miss Gardner, or Miss Enke.

*Second Semester:*

Organ 2, once a week, by appointment. Professor Skilton.

Piano 4, once a week, by appointment. Assistant.

Technic (Piano 12), once a week, by appointment. Assistant.

Harmony (Musical Theory 4), Tuesday and Friday, at 3. Professor Skilton.

Physical Education 4, once a week, by appointment. Assistant Professor Fish.

English 11, three hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professors Gray and Johnson, and instructors.

Normal Class, Wednesday, at 4. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture, by appointment. Professor Hubach.

Free-hand Drawing. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30. Associate Professor Engel and Assistant Professor Corbin.

French 2, daily, at 8, 9, 11:15, and 1:30. Assistant Professor Neuen Schwander and Mr. Winter.

Italian 2, three hours, at 1:30. Assistant Professor Ward.

Spanish 2, five hours, at 9 or 1:30. Mr. Winter or Miss Enke.

## JUNIOR YEAR.

*First Semester:*

Organ 3, twice a week, by appointment. Professor Skilton.

Composition (Musical Theory 7), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 5), Monday, at 3. Professor Preyer.

Organ 8, once a week, by appointment. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

*First Semester:*

## JUNIOR YEAR.

English 12 *a* and *b*. HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions at 8, 9, and 10:15. Two-hour divisions at 11:15, 1:30, 2:30, and 3:30. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

Recitals and Ensemble Playing.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture 1 or 2, by appointment. Professor Hubach.  
German 1 or 3, daily. Associate Professor Engel and Assistant Professor Corbin.

French 1 or 3, daily. Assistant Professor Neuen Schwander.  
Italian and Spanish as in Sophomore year.

Drawing and Painting 1 or 2. Professor Griffith.

Expression 9, once a week. Miss Mossler.

*Second Semester:*

Organ 4, twice a week, by appointment. Professor Skilton.

Composition (Musical Theory 8), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 6), Monday, at 3. Professor Preyer.

Organ 9, once a week, by appointment. Professor Skilton.

English 13 *a* and *b* HISTORY OF ENGLISH LITERATURE. Two or three hours, second semester; three-hour divisions, at 11:15, 1:30, 2:30, and 3:30; two-hour divisions, at 8 and 9. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray and Johnson.

Acoustics, three hours a week. (Not given in 1912.)

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing.

Thesis 1. Professor Skilton.

One of the following optionals may be taken (private lessons subject to fees):

Vocal Culture 1 or 2, by appointment. Professor Hubach, or Assistant Professor Lyons.

Drawing and Painting. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2 or 4, daily. Associate Professor Engel and Assistant Professor Corbin.

French 2 or 4, daily. Assistant Professor Neuen Schwander.

Italian and Spanish as in Sophomore year.



## SENIOR YEAR.

*First Semester:*

Organ 5, twice a week, by appointment. Professor Skilton.  
 Canon and Fugue (Musical Theory 11), Wednesday, at 11.

Professor Preyer.

Church Music 7, once a week. Professor Skilton.

Recitals and Ensemble Playing.

Thesis 2. Professor Skilton.

Optional. English 50, 76, and 78. Other optionals as in previous years.

Composition (Musical Theory 9), once a week, by appointment. Professor Preyer.

*Second Semester:*

Organ 6, twice a week, by appointment. Professor Skilton.

Instrumentation (Musical Theory 12), Wednesday, at 3. Professor Skilton.

Thesis 3. Professor Skilton.

Optional. English 77, 78, and 87. Other optionals as in previous years.

Composition (Musical Theory 10), once a week, by appointment. Professor Preyer.

## VIOLIN.

Leading to the Degree of Bachelor of Music.

These courses are the same as the four-year course in piano, except that violin 1 to 8 takes the place of piano 1 to 8, and piano 9 to 12 is omitted. Students must be able to play easy piano accompaniments or make up the deficiency by private lessons.

## VOCAL CULTURE.

Leading to the Degree of Bachelor of Music.

## FRESHMAN YEAR.

*First Semester:*

Vocal Culture 1, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 1), Tuesday and Thursday, at 2. Professor Skilton.

Rhetoric 1, three hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Associate Professor Sisson, Assistant Professor Lynn, and instructors.

Italian 1, three hours a week, by appointment. Assistant Professor Ward.

Physical Education 1, once a week. Assistant Professor Fish.

History of Music, Thursday at 4. Professor Skilton.

Recitals and Chorus Singing.

## FRESHMAN YEAR.

*Second Semester:*

Vocal Culture 2, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 2), Tuesday and Thursday, at 2. Professor Skilton.

Rhetoric 2, two hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Associate Professor Sisson, Assistant Professor Lynn, and instructors.

Physical Education 2, once a week. Assistant Professor Fish.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing.

Optional. Italian 2, three hours a week, by appointment. Assistant Professor Ward.

## SOPHOMORE YEAR.

*First Semester:*

Vocal Culture 3, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 3), Tuesday and Friday, at 3. Professor Skilton.

English 10, two hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professors Gray and Johnson, and instructors.

Physical Education 3, once a week. Assistant Professor Fish.

Sight-singing Class, Wednesday, at 4. Assistant Professor Lyons.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing.

One of the following optionals may be taken (private lessons are subject to fees) :

Piano 1, twice a week. Professor Preyer or assistant.

Free-hand Drawing. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1, daily, at 8, 9, 11:15, and 2:30. Associate Professor Engel and Assistant Professor Corbin.

French 1, daily, at 8, 9, 11:15, and 2:30. Assistant Professor Neuen Schwander, and assistants.

Italian 1, three hours, at 1:30. Assistant Professor Ward.

Spanish 1, five hours, at 9, 11:15, or 1:30. Mr. Winter, Miss Gardner, or Miss Enke.

*Second Semester:*

Vocal Culture 4, twice a week, by appointment. Professor Hubach or Assistant professor Lyons.

Harmony (Musical Theory 4), Tuesday and Friday, at 3. Professor Skilton.

*Second Semester:*

## SOPHOMORE YEAR.

English 11, three hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professors Gray and Johnson, and instructors.

Physical Education 4, once a week. Assistant Professor Fish.  
Sight-singing Class, Wednesday, at 4. Assistant Professor Lyons.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing.

One of the following optionals may be taken (private lessons are subject to fees):

Piano 1, twice a week, by appointment. Professor Preyer or assistant.

Free-hand Drawing. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2, daily, at 8, 9, 11:15, and 2:30. Associate Professor Engel and Assistant Professor Corbin.

French 2, daily, at 8, 9, 11:15, and 2:30. Assistant Professor Neuen Schwander, and assistants.

Italian 2, three hours, at 1:30. Assistant Professor Ward.

Spanish 2, five hours, at 9 or 1:30. Mr. Winter or Miss Enke.

*First Semester:*

## JUNIOR YEAR.

Vocal Culture 5, twice a week, by appointment. Professor Hubach.

Composition (Musical Theory 7), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 5), Monday, at 3. Professor Preyer.

History of Music, Thursday, at 4. Professor Skilton.

English 12 *a* and *b*. HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions at 8, 9, and 10:15. Two-hour divisions at 11:15, 1:30, 2:30 and 3:30. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

One of the following optionals may be taken (private lessons are subject to fees):

Piano 1 or 2, twice a week, by appointment. Professor Preyer or assistant.

Drawing and Painting. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1 or 3, daily. Associate Professor Engel and Assistant Professor Corbin.

French 1 or 3, daily. Assistant Professor Neuen Schwander.

Italian and Spanish as in Sophomore year.

## JUNIOR YEAR.

*Second Semester:*

Vocal Culture 6, twice a week, by appointment. Professor Hubach.

Composition (Musical Theory 8), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 6), Monday, at 3. Professor Preyer.

Acoustics, two hours a week. (Not given in 1912.)

History of Music, Thursday, at 4. Professor Skilton.

English 13 *a* and *b*. HISTORY OF ENGLISH LITERATURE. Two or three hours, second semester. Three-hour divisions at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions at 8 and 9. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

Thesis 1. Professor Skilton.

One of the following optionals may be taken (private lessons are subject to fees):

Piano 1 or 2, twice a week, by appointment. Professor Preyer or assistant.

Drawing and Painting. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2 or 4, daily. Associate Professor Engel and Assistant Professor Corbin.

French 2 or 4, daily. Assistant Professor Neuen Schwander.

Italian and Spanish as in Sophomore year.

## SENIOR YEAR.

*First Semester:*

Vocal Culture 7, twice a week, by appointment. Professor Hubach.

Canon and Fugue (Musical Theory 11), Wednesday, at 11. Professor Preyer.

Thesis 2. Professor Skilton.

Optional, English 50, 76, and 78. Other optionals as in previous years.

Composition (Musical Theory 9), Once a week, by appointment. Professor Preyer.

*Second Semester:*

Vocal Culture 8, twice a week, by appointment. Professor Hubach.

Instrumentation (Musical Theory 12), Wednesday, at 3. Professor Skilton.

Opera, once a week. Professor Hubach.

Thesis 3. Professor Skilton.



## SENIOR YEAR.

*Second Semester:*

Optional, English 77, 78, and 87. Other optionals as in previous years.

Composition (Musical Theory 9), by appointment. Professor Preyer.

## DRAWING AND PAINTING.

Leading to the Degree of Bachelor of Painting.

## FRESHMAN YEAR.

*First Semester:*

Drawing 1, Monday, Wednesday, and Friday, 1:30 to 4:30.

Professor Griffith and Miss Benson.

English 10, three hours a week.

Rhetoric 1, two hours a week.

Drawing 9 (Perspective), Tuesday and Thursday, at 11:15.

Professor Griffith.

Drawing 10 (History of Modern Painting). Professor Griffith.

Physical Education 1 and 2, twice a week. Assistant Professor Fish.

*Second Semester:*

Drawing 1, Monday, Wednesday, and Friday, 1:30 to 4:30.

Professor Griffith and Miss Benson.

English 11, two hours a week.

Rhetoric 2, three hours a week.

Drawing 8 (Composition), Tuesday, at 11:15. Professor Griffith.

Drawing 5 (Painting), daily, 1:30 to 4:30. Professor Griffith.

Physical Education 1 and 2, twice a week. Assistant Professor Fish.

## SOPHOMORE YEAR.

*First Semester:*

Drawing 2, Monday, Wednesday, and Friday, 1:30 to 4:30.

Professor Griffith.

Drawing 11 (Ornamental Design), Monday, Wednesday, and Friday, 10:15 to 12:15. Miss Benson.

English 12, two hours a week.

Physical Education 50 (Mechanical Anatomy), three hours, 8 to 10. Professor Naismith.

Optional. French 1 and 2, German 1 and 2, Italian 1 and 2, Spanish 1 and 2, Philosophy 1 and 2, Manual Arts (Drawing and Design 4), Zoölogy 1.

## SOPHOMORE YEAR.

*Second Semester:*

- Drawing 5, Monday, Wednesday, and Friday, 1:30 to 4:30.  
Professor Griffith.  
Drawing 11, Monday, Wednesday, and Friday, 10:15. Miss Benson.  
Drawing 8, Tuesday, at 11:15. Professor Griffith.  
English 13, three hours a week.  
Optional. French 1 and 2, German 1 and 2, Italian 1 and 2, Spanish 1 and 2, Philosophy 1 and 2, Botany 1.

## JUNIOR YEAR.

*First Semester:*

- Drawing 7 (Painting), daily, 1:30 to 4:30. Professor Griffith.  
Drawing 12 (Ornamental Design), Monday, Wednesday, and Friday, 8 to 10:15. Miss Benson.  
Greek Architecture 61, two hours, at 11:15. Professor Wilcox.  
English 50, three hours a week.  
Optional. French 1 and 2 or 3 and 4, German 1 and 2 or 3 and 4, Spanish 1 and 2 or 3 and 4, Italian 1 and 2 or 3 and 4, English 71 and 72, Applied Design (Drawing and Design 7 and 8).

*Second Semester:*

- Drawing 6, daily, 1:30 to 4:30. Professor Griffith.  
Drawing 12, Monday, Wednesday, and Friday, 8 to 10:15. Miss Benson.  
Drawing 8, Tuesday, at 11:15.  
Greek Sculpture and Painting 62, three hours, at 11:15. Professor Wilcox.  
English 51, two hours a week.  
Optional. Same as first semester.

## SENIOR YEAR.

*First Semester:*

- Drawing 7, daily, 1:30 to 4:30. Professor Griffith.  
Drawing 13 (History of Ornament), Tuesday and Thursday, at 10:15.  
Optionals. Same as Junior year.

*Second Semester:*

- Drawing 6, daily, at 1:30 to 4:30. Professor Griffith.  
Drawing 13, Tuesday and Thursday, at 10:15.  
Drawing 8, Tuesday, at 11:15.  
Graduating Painting.  
Optionals. Same as first semester.

## EXPRESSION.

## TWO-YEAR COLLEGIATE COURSE.

The course in expression covers two years of regular University work. Its purpose is to train students to become intelligent and effective readers, whether in the home or on the platform; to give them an understanding and appreciation of the drama, both as literature and as a theatrical representation, and to fit them to teach expression in all its phases, in schools and colleges. A certificate is given upon completion of the two years' course.

All courses in expression are with Miss Mossler and Miss Walker.

## JUNIOR YEAR.

*First Semester:*

Physical Education (Expression 1), one hour a week.

Voice Training (Expression 3).

Literary Interpretation (Expression 15).

Vocal Expression (Expression 7).

Dramatic Art (Expression 11).

Phrasing (Expression 9).

Rhetoric 1, three hours a week. Associate Professor Sisson, Assistant Professor Lynn, and instructors.

English Literature 10, two hours a week. Assistant Professors Gray and Johnson, and instructors.

Recitals.

Optionals: Greek Art, Modern Art, History of Music.

*Second Semester:*

Physical Education (Expression 2).

Voice Training (Expression 4).

Literary Interpretation (Expression 15).

Vocal Expression (Expression 8).

Dramatic Art (Expression 11).

Phrasing (Expression 10).

Rhetoric 2, three hours a week. Associate Professor Sisson, Assistant Professor Lynn, and instructors.

English Literature 11, three hours a week. Assistant Professors Gray and Johnson, and instructors.

Recitals.

Optionals: Greek Art, Modern Art, History of Music.

## SENIOR YEAR.

*First Semester:*

Voice Training (Expression 5).

Literary Interpretation (Expression 16).

Dramatic Art (Expression 12).

Oratory (Expression 19).

English Literature 12, two or three hours a week. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

Recitals.

Optionals: French 1, or German 1.

*Second Semester:*

Voice Training (Expression 6).

Literary Interpretation (Expression 17).

Dramatic Art (Expression 13).

Oratory (Expression 20).

Art of Conversation (Expression 21).

Practice Teaching (Expression 22).

English Literature 13, two or three hours a week. Associate Professors Whitcomb and O'Leary, and assistants.

Recitals.

Optionals: French 2, or German 2,

## TWO-YEAR COLLEGIATE COURSES.

These courses (identical with the work of the first and second years of the four-year collegiate courses outlined above) are intended for those students who feel that their time is limited. They are especially designed for teachers. A certificate is given upon completion of one of these courses.

## ARTISTS' COURSES

IN PIANO, VOICE, VIOLIN, VIOLONCELLO, ORGAN, OR MUSICAL COMPOSITION.

These courses are the same as the four-year collegiate courses in these subjects, requiring for graduation a graduating recital or a program of original musical compositions, or a combination of both.

For entrance and continuation in these courses the highest grade will be required in all examinations in piano, voice, organ, violin, violoncello, or composition.



## DESCRIPTION OF COURSES IN THE SCHOOL OF FINE ARTS.

The courses in English, French, Italian, German, Greek, physical education and physics are given in the College. They are open to regular Fine Arts students, on application to the Dean of the School of Fine Arts, but students must also enroll with the Dean of the College.

### DRAWING AND PAINTING.

Professor GRIFFITH.  
Miss BENSON.

All courses are required of students of drawing and painting and are open to other students of the School of Fine Arts who are prepared for them.

1.—FREE-HAND DRAWING. Free-hand drawing in charcoal, from the cast. The method of instruction aims to teach the student to construct form in a simple and correct manner. Freshman, throughout the year, Monday, Wednesday, and Friday, 1:30 to 4:30.

2.—FREE-HAND DRAWING. Free-hand drawing in charcoal, from life. Designed to give firm construction in drawing, and training in grasping the essential character of the model. Sophomore, first semester, and second semester, (a), Monday, Wednesday, and Friday, 1:30 to 4:30.

3.—FREE-HAND DRAWING. Free-hand drawing in pen and ink, from cast and still life. The technique of pen drawing for reproduction. Sophomore, first semester, daily, 1:30 to 4:30.

4.—FREE-HAND DRAWING. Free-hand drawing with water colors. Wash-drawing for reproduction by the half-tone process. Sophomore, second semester, daily, 1:30 to 4:30.

5.—PAINTING. Painting with water color, oil, or pastille, from still life. Students begin the study of color in this class. The observation and reproduction of simple masses of form and color. Freshman, second semester; Sophomore, first semester and second semester; daily, 1:30 to 4:30.

6.—PAINTING. Painting with water color, oil, or pastille, from life. Portrait painting is the object of the instruction given in this class. Junior and Senior, first and second semesters, daily, 1:30 to 4:30.

7.—PAINTING. Painting of landscape and human figures in the open air. Junior and Senior, second semester, daily, 1:30 to 5:30.

8.—COMPOSITION. Throughout the entire course every student is required to study the pictorial compositions of the masters, and each week to make one original composition upon a given subject. Tuesday, at 11:15.

9.—PERSPECTIVE. Linear perspective, shadows, and reflections. Freshman, first semester, Tuesday, at 11:15.

10.—HISTORY OF MODERN PAINTING. Freshman, first semester, Thursday, at 11:15.

11.—ORNAMENTAL DESIGN. The anatomy of pattern and the planning of ornament. Sophomore, first semester, Monday, Wednesday, and Friday, at 10:15.

12.—ORNAMENTAL DESIGN. The application of design for the production of ceramic art. Must be preceded by course 5. Monday, Wednesday, and Friday, at 8.

13.—HISTORY OF DESIGN. Two hours, first semester, Tuesday and Thursday, at 10:15.

### EXPRESSION.

MISS MOSSLER.  
MISS WALKER.

1 and 2.—PHYSICAL EDUCATION. Can be taken any time during course. One hour a week for two semesters.

3 to 6.—VOICE TRAINING. One hour a week throughout the course.

7 and 8.—VOCAL EXPRESSION. One hour a week, two semesters.

9 and 10.—PHRASING. One hour a week during first year.

11 to 14.—DRAMATIC ART. One hour a week for two years.

15 to 18.—LITERARY INTERPRETATION. One hour a week for two years.

19 to 20.—ORATORY. One hour a week, second semester, Junior year.

21.—ART OF CONVERSATION. One hour a week, second semester, Senior year.

22.—PRACTICE TEACHING. One hour a week, second semester, Senior year.

23.—RECITALS. Public platform work. When students are prepared for it.

## ENGLISH LANGUAGE AND LITERATURE.

Professor DUNLAP.  
 Professor HOPKINS.  
 Associate Professor O'LEARY.  
 Associate Professor SISSON.  
 Associate Professor WHITCOMB.  
 Assistant Professor LYNN.  
 Assistant Professor GRAY.  
 Assistant Professor JOHNSON.

1.—RHETORIC AND ENGLISH COMPOSITION. Three hours, first semester, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Written and oral themes and exercises, with outlines of rhetorical theory. Required of all Freshmen in the School of Fine Arts. Associate Professor Sisson, Assistant Professor Lynn, and instructors.

2.—RHETORIC AND ENGLISH COMPOSITION. Two hours, second semester, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Two-hour divisions, Tuesday and Thursday, at the same hours. A continuation of course 1. Required of all Freshmen in the School of Fine Arts. Associate Professor Sisson, Assistant Professor Lynn, and instructors.

3.—NARRATION AND DESCRIPTION. Three hours, first semester, at 8 and 9. A study of general principles, with exercises. Required of all Juniors in the School of Fine Arts. Associate Professor O'Leary and Assistant Professor Lynn.

4.—NARRATION AND DESCRIPTION. Two hours, second semester, at 8 and 9. A continuation of course 3. Associate Professor O'Leary and Assistant Professor Lynn.

10.—ENGLISH LITERATURE. Two hours, first semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Two-hour divisions, Tuesday and Thursday, at 8, 9, 10:15, and 1:30. Class study of representative authors, with required library reading. Required in the first two years of the School of Fine Arts. Assistant Professors Gray and Johnson, and instructors.

11.—ENGLISH LITERATURE. Three hours, second semester, at 8, 9, 10:15, 11:15, and 1:30. Two-hour divisions, Tuesday and Thursday, at 8, 9, 10:15, 1:30, 2:30, and 3:30. A continuation of course 10. Required in the first two years of the School of Fine Arts. Assistant Professors Gray and Johnson, and instructors.

12a and b.—HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions, at 8, 9, and 10:15. Two-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Textbooks, Long's History of English Literature, Manly's English Poetry (1170-1892), and Manly's English Prose (1137-1890). Required for admission to courses 76, 77, 78, and 87. Required of all students in the School of Fine Arts. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

13a and b.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two or three hours, second semester. Three-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions, at 8 and 9. A continuation of course 12. Required for admission to courses 76, 77, 78, and 87. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

50.—NARRATION AND DESCRIPTION. Three hours, first semester, at 8 and 9. A study of general principles, with exercises. Associate Professor O'Leary and Assistant Professor Lynn.

76.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, first semester, at 11:15. Prose, exclusive of the novel. Biographical and critical lectures. The essay. Criticism. History. The authors studied are Lamb, Hazlitt, De Quincey, Landor, Newman, Arnold, Carlyle, Macaulay, Ruskin, Pater, and Stevenson. Two hours of library work daily and preparation of two theses. Professor Dunlap.

77.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, second semester, at 9. Poetry. Biographical and critical lectures. The authors studied are Wordsworth, Coleridge, Southey, Byron, Arnold, Tennyson, and Browning. Two hours of library work daily and preparation of two theses. Professor Dunlap.

78.—SHAKSPERE. Three hours, both semesters, at 10:15. Lectures upon the life and times of Shakspeare. Study and interpretation of three plays, with special attention to literary form, plot construction, character study, and Elizabethan grammar. Two hours of library work required daily and preparation of two theses. Professor Dunlap.

87.—THE ENGLISH NOVEL. Three hours, second semester, at 11:15. An historical and critical survey of the English novel, from Defoe to Meredith. Lectures on the growth and development of the novel. Study of selected typical novels, illustrative of important phases of fiction. Two hours of library work daily and preparation of two theses. Professor Dunlap.

## FRENCH.

Professor GALLOO.  
Assistant Professor NEUEN SCHWANDER.  
Assistant Professor WARD.  
Mr. WINTER.  
Miss GARDNER.

1.—ELEMENTARY FRENCH I. Five hours, first semester, daily, at 8, 9, 10:15, and 1:30. Also given in the second semester, five hours, daily, at 8. Drill in pronunciation, accidence and elementary syntax. Prerequisites, three years of Latin or three years of German. Professor Galloo, Assistant Professor Neuen Schwander or Assistant Professor Ward, Mr. Winter and Miss Gardner.



2.—ELEMENTARY FRENCH II. Five hours, second semester, daily, at 8, 9, 10:15, and 1:30. Also given in the first semester, five hours, daily, at 8. A continuation of course 1. Reading of simple prose texts, with exercises in dictation and elementary composition. Assistant Professors Neuen Schwander and Ward, Mr. Winter and Miss Gardner.

3.—MODERN FRENCH PROSE. Three hours, both semesters—first semester, at 9; second semester, at 8. Translation and reading of some works of Mérimée, George Sand, Anatole France and René Bazin. Assistant Professors Neuen Schwander and Ward, or Miss Gardner.

4.—COMPOSITION. Two hours, both semesters—first semester, at 9; second semester, at 8. Written exercises intended chiefly as a grammatical review. Oral exercises. Dictation. Assistant Professors Neuen Schwander and Ward, and Mr. Winter.

## ITALIAN.

Professor GALLOO.  
Assistant Professor WARD.

1.—ELEMENTARY ITALIAN I. Three hours, first semester, at 1:30. Grammar. Reading, De Amicis's *Cuore*. Assistant Professor Ward.

2.—ELEMENTARY ITALIAN II. Continuation of course 1. Three hours, second semester, at 1:30. Grammar, composition, and reading of modern authors. Assistant Professor Ward.

## GERMAN.

Professor CARRUTH.  
Assistant Professor ENGEL.  
Assistant Professor CORBIN.

NOTE.—For admission to German 1 and 2, the full amount of three units of Latin is required.

1.—GERMAN GRAMMAR. Carruth's Otis's Grammar, with composition exercises. Carruth's Reader, about fifty pages. Five hours, first semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30; second semester, at 1:30. Associate Professor Engel, Assistant Professor Corbin, and assistants.

2.—GERMAN READER, completed, and SCHILLER'S *WILHELM TELL* (complete). Also special exercises in word order and auxiliary verbs and sight-reading. Second semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 3:30; first semester, at 9, 1:30, and 2:30. Associate Professor Engel, Assistant Professor Corbin, and assistants.

3.—GERMAN PROSE. Lessing's *Minna v. Barnhelm*, etc. Preceded by review of grammar. Sight-reading. Five hours, first semester, daily, at 8, 9, 10:15, 11:15, 2:30, and 3:30; second

semester, at 9, 2:30, and 3:30. Associate Professor Engel, Assistant Professor Corbin, and assistants.

4.—SCHILLER'S *WALLENSTEIN*. Five hours, second semester, daily, at 8, 9, 10:15, 11:15, 2:30, and 3:30; first semester, at 10:15 and 3:30. Associate Professor Engel, Assistant Professor Corbin, and assistants.

### GREEK.

Professor WILCOX.

61 and 62.—HISTORY OF GREEK ART. Lectures, recitations, private reading, writing of themes. First semester, two hours; second semester, three hours, at 11:15. Professor Wilcox.

### MUSICAL THEORY.

Professor SKILTON.  
Professor PREYER.

The following courses are required of all students in the regular music courses, excepting 9 and 10, which are optional.

1.—HARMONY. The study of overtones, scales, intervals, triads and seventh chords and their inversions. The practical work consists of harmonizing melodies in soprano or bass and playing chord progressions at the piano. Freshman, first semester, Tuesday and Thursday, at 2. Chadwick's *Harmony* used. Professor Skilton.

2.—HARMONY. The study of close and open harmony, dominant ninth and diminished seventh chords, modulations. Practical work continued. Freshman, second semester, Tuesday and Thursday, at 2. Professor Skilton.

3.—HARMONY. The study of modulation, irregular resolutions, altered chords, suspensions, passing tones, organ point, harmonization of florid melodies. Practical work continued. Sophomore, first semester, Tuesday and Friday, at 3. Professor Skilton.

4.—HARMONY. Suspensions, passing tones, appoggiaturas, neighboring tones, organ point, harmonization of florid melodies, analysis. Practical work continued. Sophomore, second semester, Tuesday and Friday, at 3. Professor Skilton.

5.—COUNTERPOINT. The different orders of single counterpoint in two, three and four parts. Junior, first semester, Monday, at 3. Professor Preyer.

6.—COUNTERPOINT. Double and triple counterpoint; counterpoint in the twelfth and fifteenth and in more than four parts. Modern counterpoint. Junior, second semester, Monday, at 3. Professor Preyer.

7.—MUSICAL COMPOSITION. The theme and variations, dance and song forms. Analysis of classical models and practical work. Junior, first semester, Thursday, at 3. Professor Skilton.

8.—MUSICAL COMPOSITION. The sonata and rondo forms; analysis of classical sonatas; original work. Junior, second semester, Thursday, at 3. Professor Skilton.

9.—MUSICAL COMPOSITION. Original work in modern forms. Open only to those who show talent for composition. Senior, first semester, Wednesday, at 9. Professor Preyer.

10.—MUSICAL COMPOSITION. Continuation of course 9. These two courses are open only to those who show talent for composition. Senior, second semester, Wednesday, at 3. Professor Preyer.

11.—CANON AND FUGUE. The various forms of canon and their use in composition. The fugue in two, three and four parts. Analysis of Bach fugues and original work. Senior, first semester, Wednesday, at 3. Professor Preyer.

12.—INSTRUMENTATION. The nature and treatment of the different instruments of the orchestra. The overture, symphony, cantata. Practical work for the University Orchestra. Senior, second semester, Wednesday, at 3. Professor Skilton.

### ORGAN.

Professor SKILTON.

1.—MANUAL AND PEDAL STUDIES. Merkel or Archer. Pedal scales and arpeggios; the principles of hymn playing. Sophomore, first semester, one hour a week, by appointment.

2.—MANUAL AND PEDAL STUDIES. Buck's Studies in Pedal Phrasing; Schmidt's Organ Etudes; Bach's Little Preludes and Fugues; Flagler's The Organist's Treasury, and other selections. Sophomore, second semester, one hour, by appointment.

3.—SERVICE AND SOLO PLAYING. Buck's Choir Accompaniment. Various styles of hymn playing; accompaniment of solo and chorus. Schneider's Pedal Studies, easier preludes and fugues of Bach and Mendelssohn. Modern pieces by Batiste, Lemmens, Guilmant, and others. Junior, first semester, two hours, by appointment.

4.—SERVICE AND SOLO PLAYING. Arrangement of piano accompaniments, for organ. Practice in accompanying singers. The easier sonatas of Mendelssohn, Merkel, Guilmant, and others. Junior, second semester, two hours, by appointment.

5.—CHURCH AND CONCERT PLAYING. Practical work in playing the church service. The more difficult fugues and sonatas. Concert pieces by Widor, Guilmant, Saint-Saëns, Thiele, and

others. Senior, first semester, two hours a week, by appointment.

6.—CHURCH AND CONCERT PLAYING. Extemporization and transposition. Program making. Preparation of a recital. Senior, second semester, two hours a week, by appointment.

7.—CHURCH MUSIC. The history of church music, examination of different schools and styles. Senior, first semester, one hour a week.

8 and 9.—ORGAN CONSTRUCTION. Examination of tracker, tubular pneumatic, and electric action in available organs. Practice in tuning. One hour a week, Junior year, by appointment.

### PIANOFORTE.

Professor PREYER.  
Assistant Professor GREISINGER.  
Assistant Professor COOKE.  
Miss MILLER.  
Miss W.  
Miss SWEENEY.

Courses 1 to 12, inclusive, are open only to students of the School of Fine Arts. Course 13 is open only to graduates in piano.

1 and 2.—PIANO. Hanon: Virtuoso Pianist. A limited number of studies from the following: Whiting Melodious Technical Exercises; Hoffman, etudes for the left hand; Cramer-Buelow, sixty selected etudes; Preyer, twenty etudes, op. 35 (Schirmer); Bach, two- and three-part inventions (Litolf, op. 42), etc. Sonatas by Haydn, Mozart, Beethoven. Selections from classic and modern compositions. Freshman, throughout the year, twice a week, by appointment. Assistants.

3 and 4.—PIANO. Czerny: Daily Exercises. Etudes, selected according to the needs of the pupil, from Clementi's Preludes and Exercises; Jensen, op. 32; MacDowell, op. 39; Haberbier, Etudes Poesies, op. 53; Bach, English Suites. Concertos by Mozart, Hummel, etc. Selections from classic and modern compositions. Sophomore, throughout the year, twice a week, by appointment. Assistants.

5 and 6.—Phillipp: Daily Exercises, Clementi's Gradus ad Parnassum; Etudes from Moscheles, op. 70; Seeling, Concert Etudes, op. 10; Chopin, Preludes; Bach, Well-tempered Clavichord (Reinecke, B. and H.); concertos by Beethoven, Mendelssohn, etc.; concert pieces by classic and modern composers. Junior, throughout the year, private lessons, twice a week, by appointment. Professor Preyer.

7 and 8.—Joseffy: School of Advanced Piano Playing. Phillipp, etudes for the left hand; etudes from Chopin, op. 10



and op. 25; Rubinstein, op. 23, etc. Sonatas and concertos by Beethoven, Weber, Grieg, etc. Concert pieces by modern composers. Senior, throughout the year, private lessons, twice a week, by appointment. Professor Preyer.

9 to 12.—A course for the study of pianoforte methods, aiming to develop independence of the fingers, and acquiring correct habits of practicing the scales, arpeggios, trills, octaves, chords, etc. Freshman and Sophomore, throughout the year. Wednesday, 3:30 to 4:30. Miss Miller.

13.—TEACHING MATERIALS. A study of teaching materials for piano. Each pupil is required to keep a notebook, teach one practice student and attend a one-hour class each week. Open to all classes but Freshman and to advanced special students. Ten weeks during second semester. Assistant Professor Greisinger.

#### GRADUATE COURSE.

14 and 15.—Phillipp (continued. Modern etudes, by Liszt, MacDowell, etc.; selections from Lebert & Stark, Pianoforte School, book IV. Transcriptions of Bach's organ fugues, by Liszt, Tausig, D'Albert, etc. Modern concert pieces and concertos. Twice a week throughout the year. Professor Preyer.

#### PHYSICAL EDUCATION.

Professor NAISMITH.  
Assistant Professor FISH.

1.—MARCHING. Elementary work in free-hand, dumb-bells, wands, and clubs; hygienic work on the apparatus; gymnastic games for recreation. First semester. Assistant Professor Fish.

2.—ADVANCED WORK IN FREE-HAND. Calisthenics, and hygienic work on the apparatus; athletics of an all-around nature; games for skill and physical judgment. Second semester. Assistant Professor Fish.

3.—EDUCATIONAL WORK WITH LIGHT AND HEAVY APPARATUS. Fancy marching; games requiring skill and self-control; squad leading in calisthenics and apparatus work. First semester. Assistant Professor Fish.

4.—SPECIALIZING IN SOME LINE OF EXERCISE. Fencing and broadsword; conducting games, competitions, and exhibitions. Second semester. Assistant Professor Fish.

50.—MECHANICAL ANATOMY. Three hours first semester, 8 to 10. The study of the bones, articulations and muscles in their relations as mechanical principles. Professor Naismith.

## PHYSICS.

Professor KESTER.

Assistant Professor STIMPSON.

2.—ELEMENTARY ACOUSTICS. A course of about twenty lectures, with demonstrations, upon the scientific basis of harmony. Required of students of the School of Fine Arts. Second term, by appointment. Not given in 1912. Given in alternate years. Assistant Professor Stimpson.

## SPANISH.

Professor GALLOO.

Mr. WINTER.

Miss GARDNER.

Miss ENKE.

1.—ELEMENTARY SPANISH I. Five hours, first semester, at 9, 11:15, or 1:30. An outline of grammar (Hills and Ford). Reading of short stories. Elementary composition. Prerequisites, three years of Latin or three years of German. In addition, one year of French is recommended. Mr. Winter, Miss Gardner, or Miss Enke.

2.—ELEMENTARY SPANISH II. Five hours, second semester, at 9 or 1:30. Grammar and composition. Reading of easy modern prose; Carrión-Aza Pérez Galdós, Palacio Valdés, etc. Mr. Winter or Miss Enke.

## VIOLIN.

Professor MORSE.

Courses 1 to 4, inclusive, are required of all violin students.

1.—SCHRADIECK'S FINGER TECHNIC; Hermann's Violin School, book I; Hermann's School of Scales, book I; Kayser's Thirty-six Etudes, books II and III; violin duets by Dancla, Mazas, Viotti; selections from the simpler compositions of Hermann, Singelee, Alard, De Beriot, Dancla, Papini, Leonard, and Daube. By appointment.

2.—HERMANN'S VIOLIN SCHOOL, BOOK II; Scales and Technic, by Bendix and Schradieck; Hermann's School of Scales, book II; Kreutzer's Forty Studies; sonatas selected from Mozart and Handel; violin duets by Mazas; concertos from the early Italian masters; selections from the compositions of David, De Beriot, Viotti, Rode, Kreutzer, Sauret, Papini, Handel, and Bazzini. Ensemble playing. By appointment.

3.—SCALES AND TECHNIC BY BENDIX (continued); Hermann's School of Scales, book III; Fiorillo's Thirty-six Etudes; concertos by De Beriot, Spohr, and Mozart. Selections from the Compositions of Sauret, David, Wieniawski, Hauser, Vieuxtemps, Bazzini, and Bohm; sonatas for violin and piano, selected from

Beethoven, Grieg, and Tartini. Ensemble playing. By appointment.

4.—SCALES AND TECHNIC BY SCHRADIECK; Hermann's School of Scales, book III; Rode's Thirty-six Caprices; Dancla's Twenty Etudes; concertos by Spöhr, Mendelssohn, Beethoven, and Bruch; sonatas selected from J. S. Bach; compositions by Sarasate, Hubay, Raff, Vieuxtemps, Wienawski, Sauret, Ernst, Brahms, and Ries; violin duets by Spöhr. By appointment.

### VOCAL CULTURE.

Professor HUBACH.

Assistant Professor LYONS.

Courses 1 to 5, inclusive, are required of all students taking the four years' work in vocal culture; courses 1, 2, 3 and 5 are open to all other musical students. Course 5 is required of all Sophomores. Course 8 is required of all students wishing to graduate as teachers.

1 and 2.—TONE-PLACING. Dictation exercises for the special needs of the individual voice. Sustained tones. Breath control and the true legato. The study of conditions necessary for the poising of the voice. The Italian vowels. Technical exercises selected from Marchesi, Lamperti, Sieber, Abt, Panofka, Garcia, and Shakspeare. Simple English and Italian songs. Freshman, twice a week throughout the year, by appointment.

3 and 4.—VOICE EXTENSION. Development of tone. Breath control. Exercises for flexibility from Lamperti, Nava, Concone, Vannini, Bordogni, Sieber, and Shakspeare. English and Italian ballads. German lieder. Church solos. Sophomore, twice a week throughout the year, by appointment.

5 and 6.—STUDY OF TONE COLOR. Exercises for flexibility, continued. Embellishments. Exercises from Concone, Panofka, Marchesi, Garcia, Panseron, and Rossini. German lieder, English oratorio, and church solos. Junior, twice a week throughout the year, by appointment.

7 and 8.—METHODS OF TONE-PLACING AND BREATHING. A comparative study. Exercises for bravura singing from Marchesi. Flexibility and finishing exercises from the masterpieces of vocalization. Stage deportment. Selections from Italian opera and English oratorio. Senior, twice a week throughout the year, by appointment. Professor Hubach.

9.—SIGHT-SINGING. Sound relationship. Time relationship. Rhythm. Dictation exercises. Unison, two part, three part, and four part. Mrs. Lyons.

10.—OPERA. Solo and chorus drill in the standard operas. Those taking this course are united with other singers from the

University and city to form the school of grand opera. One presentation of opera will be given each year.

11.—ORATORIO. Solo and chorus drill in the standard works. Singers from the University and city are united to form the Festival Chorus. Presentation of oratorios will be given each year. This society annually engages a standard orchestra and eminent soloists for the spring festival.

12.—TEACHERS' COURSE. For students desiring to prepare themselves especially for teaching. Text: Manual Garcia. Professor Hubach.

13.—PUBLIC SCHOOL MUSIC. Two hours, both semesters. The course consists of a careful review of methods of teaching, conducting and organizing chorus, and lectures on the care of children's voices. Open to all music students. Professor Hubach.



## V. *The School of Law.*

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### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM H. CARRUTH, PH. D., Vice President.

JAMES W. GREEN, A. M., Dean, and Professor of Law.

WILLIAM L. BURDICK, PH. D., LL. B., Professor of Law.

WILLIAM E. HIGGINS, B. S., LL. B., Professor of Law.

HENRY C. HILL, A. B., LL. B., Professor of Law.

HENRY W. HUMBLE, A. M., LL. B., Associate Professor of Law.

#### *Lecturers for 1911-'12.*

J. G. SLONECKER, United States Referee in Bankruptcy, Topeka.

R. F. THOMPSON, ex-Judge of the District Court, Minneapolis.

THOMAS A. NOFTZGER, Attorney at Law, Anthony.

HENRY F. MASON, Justice of the Supreme Court of Kansas.

ALFRED W. BENSON, Justice of the Supreme Court of Kansas.

J. C. RUPPENTHAL, Judge of the District Court, Russell.

W. C. MICHAELS, Attorney at Law, Kansas City, Mo.

D. A. VALENTINE, Clerk of the Supreme Court of Kansas.

R. A. DAILY, Chicago, Ill.

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### PURPOSE OF THE SCHOOL.

It is the aim of the School of Law to give all its students a thorough acquaintance with the general principles of American law and to furnish a course of legal instruction that shall fit them to practice at the bar of any state of the Union, and to give those who do not expect to become practicing attorneys, but who desire to pursue certain legal subjects for their bearing upon business, such instruction as may be best suited to their needs.

### DEGREE GRANTED.

The course of study of the School of Law leads to the degree of bachelor of laws (LL. B.).

## SYSTEM OF INSTRUCTION.

It is believed to be proved by experience that, to be thoroughly efficient, instructional training in law courses must be given by resident teachers who give their whole time to instruction. The work of the School of Law is under the direction of five resident instructors, supplemented by lectures on special topics by competent men in the actual practice of law.

## METHOD OF TEACHING.

There are in general three methods of class instruction in law—by lectures, by textbooks, and by cases. The School of Law at the University does not pursue any method to the entire exclusion of the others. It uses the textbook method very largely for the beginning classes, and makes use of the lecture and case methods more largely as classes advance in the course. Experience seems to have shown, however, that the students get a clearer and more lasting knowledge of the fundamental principles of law through the study of a textbook and recitations in the classroom, together with a parallel study of cases to illustrate the principles involved.

The student is given large opportunity for free discussion of the topics in question, and is brought as much as possible into personal touch with his instructor.

## WORK IN PREPARATION FOR LAW.

All persons proposing to enter upon the study of law are earnestly recommended to take first either a regular or special course in the College. A good fundamental education is necessary to a successful study of law. Especially is it necessary now when the practitioner must come into competition with men who have had a thorough university training before they entered upon the study of law.

The College offers special work in subjects of great value as preparatory to law: English and American constitutional and political history, constitutional law, political science, economics, sociology, history of international and of common law, in rhetoric and English composition, and in debating. These courses are especially recommended in preparation for law.

## REQUIREMENTS FOR ADMISSION.

There are two ways of admission to the School of Law of the University: First, by certificate; second, by examination.

## 1. BY CERTIFICATE.

Nearly all students enter the School of Law by certificate from high schools, academies, or other preparatory schools. The

method of accrediting by certificate is the same as that in the College.

2. BY EXAMINATION.

Candidates for admission to the Junior class of the School of Law who cannot bring certificates are required to be examined in the following subjects. The time and place of examination are given on page 114.

SUBJECTS FOR ADMISSION.

The subjects for which entrance work may be offered, together with the number of units, are arranged in seven groups, as follows, of which a total of fifteen units must be offered:

GROUP I, English.	English, four units.	Three units are required.
GROUP II, Mathematics.	Algebra, one and one-half units. Plane geometry, one unit. Solid geometry, one-half unit. Plane trigonometry, one-half unit. Advanced algebra, one-half unit.	The algebra, one and one-half units, and plane geometry, one unit, are required.
GROUP III, Foreign Languages.	Latin, four units. Greek, three units. German, three units. French, three units.	Of these, three units are required, which may be in one language, or two units in one and one unit of any of the others.
GROUP IV, Physical Sciences.	Physical geography, one unit. Physics, one unit. Chemistry, one unit.	One unit is required.
GROUP V, Biological Sciences.	Botany, one unit. Zoölogy, one unit. Physiology, one unit.	Optional.

GROUP VI, History.	Greek and Roman, one unit. Mediæval and modern, one unit. English, one unit. American, one unit. Economics, one unit.	Two units are required.
GROUP VII, Vocational Subjects.	Woodwork, one unit. Drawing, one unit. Domestic art, one-half unit. Domestic science, one-half unit. Agriculture, one-half unit. Bookkeeping, one-half unit. Commercial law, one-half unit. Commercial geography, one-half unit. Psychology, one-half unit. Methods and management, one-half unit.	One unit may be offered.

As observed above, to secure unconditional admission to the Junior class of the School of Law, the candidate must offer fifteen units from the foregoing list of accredited preparatory subjects. Eleven and one-half units are required, as indicated; the other three and one-half units may be chosen at will from the groups.

*Beginning with September, 1912, thirty hours in the College of Liberal Arts and Sciences of the University of Kansas or their equivalent in some other university or approved college will be required for entrance to the School of Law.*

#### LENGTH OF LAW COURSE.

The completed course includes three years, each of which occupies eight and one-half months (excluding two weeks' recess at Christmas). The first semester of the year 1911-'12 will begin on Wednesday, the 13th day of September, 1911.



## COLLEGE AND SCHOOL OF LAW IN SIX YEARS.

A regular course in the College is strongly recommended. During his Senior year of the College a student is permitted to elect one half-year's work from the course in the School of Law, for which he will receive credit in his College course. By this arrangement, the student, by reasonable extra work, may finish both the College and the School of Law in six years.

## COURSES OF LAW IN THE SUMMER SESSION.

Attention is called to the opportunity of shortening the law course, or of correcting irregularities therein, by taking such law subjects as are offered in the Summer Session of the University.

A course has been arranged which will enable a person who enrolls in three Summer Sessions to graduate after attending two regular sessions of the University, provided he has previously completed the preparatory work required for entrance to the Law School, as laid down in this catalogue. For each course the student is referred to the outline of course of study in the Summer and Regular Sessions, on page 298.

## ADMISSION TO ADVANCED STANDING.

Persons who have previously completed a part of the course are admitted to advanced standing in the Junior and Middle classes on satisfying the Faculty as to their qualifications. No one will be so admitted to the Senior class except upon passing a satisfactory examination upon the requirements for admission, and also upon the work prescribed for the Junior and Middle classes.

Certificates of work done in other law schools of recognized standing and equivalent requirements may be received in lieu of examinations for advanced standing.

## UNCLASSED STUDENTS.

Opportunity is given in the School of Law for the admission of persons of mature years who desire to pursue special work without following any prescribed course or becoming candidates for a degree.

The admission of such unclassified students is directly under the control of the Dean of the School, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for standing as unclassified students must present satisfactory evidence of proper preparation for the studies desired, and must also meet other requirements as fixed by the Faculty.

Unclassed students are subject to the same regulations as regular students with regard to the quality of work performed and attendance at recitations and examinations.

### EXAMINATIONS.

The members of each class will be examined upon each topic when completed. A final examination will be held at the end of the third year, embracing all the studies of the course. The degree of bachelor of laws will be conferred upon members of the Senior class who complete the course of study according to the requirements.

### CERTIFICATE OF ATTENDANCE.

If the student does not graduate, he may, on application to the Registrar, receive an official certificate of his attendance and of the work accomplished by him in the school.

### ADMISSION TO THE BAR.

The legislature of 1903 amended the statute regulating admission to the bar, and provided for state examinations by a commission appointed by the supreme court. The board of examiners meets at Topeka on the third Monday in January and June. Applications for examination and proof of qualifications must be filed with the secretary of the board at least three weeks before the examination. Printed forms of application may be obtained from the clerk of the supreme court, Topeka, Kansas.

All applicants must present high-school certificates or affidavits from teachers showing the completion of the following subjects, or pass examinations therein, to wit: three years English—grammar, rhetoric and literature; arithmetic, algebra, geometry; general history, Roman, English and American history; civil government; the elements of physics; physical geography; botany, biology; political economy and sociology.

All candidates for admission are required to pass a written examination covering their legal qualifications. All subjects included in this examination are within the course of study of the University School of Law.

### PRACTICE COURTS.

There are three practice courts in the School of Law, all of them under the immediate supervision of the member of the Faculty who devotes the major part of his time to this work. The sessions are held in the courtroom, which has been fitted with all of the furniture to be found in courtrooms in actual practice. Ample accommodations are furnished for judge, jury, and practitioners.

## THE JUNIOR PRACTICE COURT.

In the Junior year preliminary instruction is first given in the analysis of opinions, and in the preparation of cases for argument. Following this preliminary instruction, court is held under the direction of the member of the Faculty in charge. The places of attorneys, clerk, and other court officers are filled in rotation by members of the class. Cases involving statements of fact are assigned. Written briefs are required to be prepared, served upon the opposing attorneys, and submitted to a court composed of two members of the class and the member of the Faculty. Written opinions containing a full discussion of the legal questions presented are required to be handed down by the student justices.

## THE MIDDLE PRACTICE COURT.

The aim of the course of the Middle year is to instruct in the preparation of cases before and after they are filed in court. To this end, statements of fact are given to the members of the class, in accordance with which trial briefs of the law and of the facts are made, and pleadings under the common law, equity and code systems of civil procedure are drawn. Each member of the class receives from the instructor in charge criticism of the work done. The code practice of the court follows closely the practice in the district courts of Kansas. Besides this work, a course of lectures is given on instructions to juries and findings of fact. Members of the class are required to draw journal entries, instructions and findings, under direction of the instructor in charge of the course.

## THE SENIOR PRACTICE COURT.

The work of this year is a continuation of the work of the preceding two years. The student is taught how to begin and prosecute a case in court. The former difficulty of originating facts in practice courts has been overcome, and all the testimony of complicated cases is placed in the hands of witnesses, who are interviewed by the attorneys assigned. The cases are then begun, prosecuted and determined as in actual practice. Juries are drawn and impaneled, the evidence produced, instructions given, verdicts and judgments rendered as in the justice of the peace courts and in the district courts of Kansas. Following this, appeals are prosecuted in due course to the supreme court, where briefs are filed and arguments made as in the supreme court of Kansas.

Only four attorneys are assigned to each case, and there are enough cases for all members of the class to act as trial attorneys and as attorneys in the appellate court. Every member

of the Senior class is thus given an opportunity to conduct a case as in actual practice.

Instruction is also given in legal ethics and in office practice.

For members of the courts, a series of lectures on practical topics is arranged for the second term of each year.

### FEES AND EXPENSES.

(For fees and expenses, see page 59.)

### STUDENT ORGANIZATIONS.

**COOLEY CLUB.** Meetings of the club occur once each week. Any student of the School of Law is eligible, but the membership is confined at present mainly to the members of the Junior and Middle classes. Legal questions are debated, and to this is added the work of the ordinary literary debating society.

**KENT CLUB.** The members of the Kent club are, in the main, members of the Senior class, although any student in the School of Law is eligible to membership. The work consists of the discussion of legal, economic and historical questions, and the consideration of legal literature. Debating is a prominent feature of the work of the club.

### THE KANSAS LAWYER.

*The Kansas Lawyer* is a monthly publication edited and managed by the students of the School of Law. In each issue appear the syllabi to the decisions of the supreme court of Kansas during the preceding month. So far as practicable, contributions to its columns are accepted from the law students and from members of the bar residing within the state, thus making *The Lawyer* a representative legal publication of the Kansas bar.

### HONORS AND PRIZES.

By resolution, the State Bar Association of Kansas, as a recognition of the School of Law and for the purpose of encouraging its students to work along the line of legal literature, assigns a place on the literary program of the annual meeting at Topeka to that student of the Senior class who prepares the best paper on some legal topic assigned by the Law Faculty. The merits of the papers submitted are passed upon by a committee appointed for the purpose. Foster Cline was the winner of this honor in 1910.

The Edward Thompson Company offers annually a prize of a set of the American and English Encyclopedia of Law for the best thesis on a subject assigned by the Law Faculty. The contest is open to all members of the School of Law. Harvey Starbuck was the winner of this prize in 1910.



## DEBATING.

Interstate debates are held each year with Oklahoma, Missouri and Colorado state universities. Members of the Law School are admitted to the preliminary contest held for the purpose of choosing representatives on each of these debates. Those chosen receive practical instruction in public speaking and debating from a committee of the general Faculty of the University. Law students are also eligible to membership in the general literary clubs of the University.

## EQUIPMENT.

GREEN HALL. A building for the School of Law of the University was completed during the summer of 1905. The building cost \$65,000, and is one of the most complete and best-equipped law buildings in the West. It has three floors, devoted to recitation rooms, offices, library, and rooms for the Law School clubs. The library contains space for about 20,000 volumes, and private study rooms for students and Faculty open into the reading room of the library. A large room is set aside for a practice court, and the best facilities possible are available for students of the law.

LIBRARIES. The law library is composed of 6500 volumes, for the exclusive use of the students of the School of Law. The library has an excellent equipment of the best law textbooks, and new texts are being added constantly. It has also reports of the courts of last resort, both state and federal, as well as Lawyers' Reports Annotated, American Decisions, American Reports, the complete *Reporter* system, and the full reprint of the English cases. Limited space has prevented as rapid growth of the library as desired, and in the new building large additions will be made to the library equipment. In addition to the volumes devoted exclusively to law, the University library of nearly 68,000 volumes is at the disposal of the law students. They thus have at hand the largest and best-selected scholarly library in the Southwest. The city library, housed in the Carnegie building, is also open to students of the School of Law for books of fiction and general literature.

STATE LIBRARY. The state library, at Topeka, which is largely a law library, is easily accessible to students upon necessary occasions. Such works as may be found usually in large state libraries will therefore be at the disposal of the members of the Law School at various times during the year.

## PROGRAM OF STUDIES.

### JUNIOR YEAR.

#### *First Semester (first half) :*

- Contracts, Clark; Williston's cases. Daily, at 9. Professor Green.
- Criminal Law, Clark and Marshall. Daily, at 10:15. Professor Burdick.
- Elementary Law, Pound. Daily, at 11:15. Associate Professor Humble.
- Practice Court. Friday, at 1:30. Professor Higgins.

#### *First Semester (second half) :*

- Contracts (continued). Daily, at 9. Professor Green.
- Agency, Mechem's Outlines and Cases. Daily, at 10:15. Associate Professor Humble.
- Torts, Bigelow. Tuesday and Thursday, at 11:15. Professor Hill.
- Practice Court. Friday, at 1:30. Professor Higgins.

#### *Second Semester (first half) :*

- Torts (continued). Monday, Wednesday and Friday, at 9. Professor Hill.
- Sales, Burdick, and cases. Daily, at 10:15. Professor Burdick.
- Bailments, Goddard's Outline and Cases. Daily, at 11:15. Associate Professor Humble.
- Practice Court. Friday, at 1:30. Professor Higgins.

#### *Second Semester (second half) :*

- Suretyship, Stearns. Daily, at 9. Associate Professor Humble.
- Damages, Mecham and Gilbert's Cases. Daily, at 10:15. Associate Professor Humble.
- Domestic Relations, Woodruff's Cases, and lectures. Daily, at 11:15. Professor Burdick.
- Practice Court. Friday, at 1:30. Professor Higgins.

### MIDDLE YEAR.

#### *First Semester (first half) :*

- Common Law Pleading, Shipman, and cases. Daily, at 8. Professor Higgins.
- Insurance, Vance; Wambaugh's cases. Daily, at 9. Associate Professor Humble.
- Equity ———, Monday, Wednesday and Friday, at 11:15. Professor Hill.
- Practice Court, Monday and Wednesday, 1:30. Professor Higgins.

*First Semester (second half) :*

- Equity Pleading, ———. Daily, at 8. Professor Higgins.  
 Quasi Contracts, Woodruff's cases. Daily, at 10:15. Professor Burdick.  
 Equity, ———. Monday, Wednesday and Friday, at 11:15. Professor Hill.  
 Practice Court. Monday and Wednesday, at 1:30. Professor Higgins.

*Second Semester (first half) :*

- Bills and Notes, ———. Monday, Wednesday and Friday, at 8. Professor Hill.  
 Trusts, ———. Tuesday and Thursday, at 8. Professor Hill.  
 Evidence, Hughes; Wigmore's Cases. Daily, at 9. Professor Green.  
 Code Pleadings, Phillips, with cases. Daily, at 10:15. Professor Higgins.

*Second Semester (second half) :*

- Bills and Notes (continued). Monday, Wednesday and Friday, at 8. Professor Hill.  
 Trusts (continued). Tuesday and Thursday, at 8. Professor Hill.  
 Evidence (continued). Daily, at 9. Professor Green.  
 Conflict of Laws, ———. Daily, at 10:15. Professor Burdick.  
 Practice Court. Monday and Wednesday, at 1:30. Professor Higgins.

## SENIOR YEAR.

*First Semester (first half) :*

- Real Property, Tiedeman, with cases. Four times a week, at 9. Professor Burdick.  
 Roman Law, Lectures, Sohm's Institutes. Once a week, at 9. Professor Burdick.  
 Corporations, ———. Daily, at 10:15. Professor Hill.  
 Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

*First Semester (second half) :*

- Real Property (continued). Four times a week, at 9. Professor Burdick.  
 Roman Law (continued). Once a week, at 9. Professor Burdick.  
 Corporations (continued). Daily, at 10:15. Professor Hill.  
 Bankruptcy, Williston's cases. Tuesday and Thursday, at 11:15. Associate Professor Humble.  
 Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

*Second Semester (first half) :*

Real property (continued). Four times a week, at 9. Professor Burdick.

Roman Law (continued). Once a week, at 9. Professor Burdick.

Partnership, Burdick; Ames's Cases. Daily, at 10:15. Associate Professor Humble.

Constitutional Law, Black. Daily, at 11:15. Professor Green.

Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

*Second Semester (second half) :*

Wills, Costigan's cases. Daily, at 10:15. Professor Hill.

Constitutional Law (continued). Daily, at 11:15. Professor Green.

Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

**Program of Studies for the Summer Session Course.**

SUMMER SESSION OF 1911.—Criminal Law and Torts. Agency and Bills and Notes, Insurance and Partnership.

REGULAR SESSION OF 1911-'12.—Common Law Pleading, Contracts, Elementary Law, Equity Pleading, Quasi Contracts, Bills and Notes, Evidence, Sales, Bailments, Damages, Domestic Relations, and Practice Courts.

SUMMER SESSION OF 1912.—Agency and Insurance, Partnership and Bills and Notes, Criminal Law and Torts.

REGULAR SESSION OF 1912-'13.—Real Property and Roman Law, Corporations, Equity, Bankruptcy, Trusts, Code Pleading, Constitutional Law, Suretyship, Conflict of Laws, Wills, and Practice Courts.

SUMMER SESSION OF 1913.—Partnership and Wills, Agency and Insurance. Criminal Law and Torts.

The student who entered after the Summer Session of 1910 must complete the course in not less than three Summer Sessions and two regular sessions. He will take the first two subjects stated under each of the above Summer Sessions and complete the subjects of the two regular sessions in the order given above.

See, also, course of law under the Summer Session.

**Courses of Study Open to Graduate Students.**

100.—CONSTITUTIONAL LAW. Five hours' credit. Daily, second semester, at 11:15. General principles governing constitutions; the United States and the states; establishment and amendment of constitutions; construction and interpretation; departmental powers; police power; eminent domain; taxation;



civil rights; constitutional guaranties; laws impairing the obligation of contracts; retroactive laws. Professor Green.

101.—COMMON LAW PLEADING. Two and one-half hours' credit. Daily, first half of first semester, at 8. An analytical and historical study of the law of remedies at common law, including ancient modes of trial; special topics assigned, such as *assumpsit*, *trover*, *trespass*, for historical investigation of the development of the law of contracts and of torts. Professor Higgins.

102.—JURISPRUDENCE. Two and one-half hours' credit. Daily, first half of first semester, at 11:15. An analytical study of the elements of jurisprudence, viz.: the science of human relations regulated by positive law; the theories of the state, sovereignty and government; an historical examination of the systems of English and American common law and equity. Selected readings. Special topics and weekly conferences. Associate Professor Humble.

103.—ROMAN LAW. One hour a week for twenty-seven weeks, first semester and first half of second semester, at 9. Development and extension of Roman law; its revival and present influence; the *corpus juris civilis*; the law of persons, of the family, of property, of servitudes, of obligations, of delicts, of inheritance, of procedure, of criminal law, etc. Professor Burdick.

#### For Mining Engineering Students.

MINING LAW. A course outlining the laws relating to the mining industries. Lectures and recitations, one hour per week, second semester, in alternate years. Given in 1910-'11. Omitted in 1911-'12. Text, Costigan on Mining Law. Mining students must take this course before graduating. Associate Professor Humble.

## VI. *The School of Pharmacy.*

### FACULTY.

- FRANK STRONG, PH. D., President.
- WILLIAM H. CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.
- LUCIUS E. SAYRE, PH. M., Dean, and Professor of Pharmacy and Materia Medica.
- EDGAR H. S. BAILEY, PH. D., Professor of Chemistry.
- ERASMUS HAWORTH, PH. D., Professor of Mineralogy.
- WILLIAM C. STEVENS, M. S., Professor of Botany.
- EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
- IDA H. HYDE, PH. D., Professor of Physiology.
- ROBERT K. DUNCAN, A. B., Professor of Industrial Chemistry.
- WILLIAM E. HIGGINS, LL. B., Professor of Law.
- L. D. HAVENHILL, B. S., Professor of Pharmaceutical Chemistry.
- F. E. KESTER, Professor of Physics.
- J. W. YOUNG, Professor of Mathematics.
- M. A. BARBER, Professor of Bacteriology and Pathology.
- ELMER F. ENGEL, A. M., Associate Professor of German.
- JOHN N. VAN DER VRIES, PH. D., Associate Professor of Mathematics.
- RALPH E. BASSETT, A. M., Associate Professor of French.
- FREDERICK H. BILLINGS, PH. D., Associate Professor of Botany and Bacteriology.
- H. P. CADY, Associate Professor of Chemistry.
- F. W. BUSHONG, Associate Professor of Chemistry.
- CHARLES M. STERLING, A. B., Assistant Professor of Pharmacognosy.
- HERBERT W. EMERSON, B. S., (Secretary), Assistant Professor of Pharmacy.
- GEORGE N. WATSON, A. B., PH. C., Assistant Professor of Pharmacy.
- C. A. NASH, Instructor in Chemistry.
- ARTHUR EARL STEVENSON, PH. C., Assistant in the Drug Laboratory.

## PURPOSE OF THE SCHOOL.

The object of this school is to give its students a thorough practical training in all of those branches connected with the pharmaceutical profession in its various departments. Special emphasis is purposely placed upon chemistry, as this is the foundation of all pharmaceutical work.

The three courses offered by the school are arranged logically and progressively; the instruction is given according to modern methods, and in the spirit of those principles which, in their application to other classes of modern technical schools, have proved so eminently successful.

Students desiring to fit themselves for food and drug analysts can arrange a course with the two departments, pharmacy and chemistry. The details of such a course will be outlined by the department, covering the period of time that the student may elect to spend in preparation.

## DEGREES.

The courses of study in the School of Pharmacy lead to the following degrees:

Bachelor of science.

Pharmaceutical chemist.

Graduate in pharmacy through the department of University extension.

## REQUIREMENTS FOR ADMISSION.

There are two methods of admission to the School of Pharmacy: First, by examination; second, by certificate.

### 1. BY EXAMINATION.

Times and place of examination for subjects required for admission to the School of Pharmacy will be found in this catalogue, on page 114.

### 2. BY CERTIFICATE.

Candidates for admission to the two- and three-year courses must present certificates of graduation from accredited schools, or certificates of the completion of one year's work in high school (in 1912 two years' work in high school will be required) or its equivalent. Students of mature years who have had two or more years drug-store experience will receive credit on some of the required high-school work.

Students having entrance deficiencies are required to enroll in the three-year course.

## FOR THE FOUR-YEAR COURSE.

Candidates for admission to the four-year course must conform, by examination or certificate, to the requirements for entrance to the Freshman year of the College. During the first two years students taking the four-year pharmacy course are enrolled in both the College and the School of Pharmacy, and pursue such College courses as are included in the curriculum of the School of Pharmacy. They are required to pay only the College incidental fee as long as their work is confined to courses offered in the College.

## UNCLASSED STUDENTS.

Unclassed students (formerly known as "special students"), not candidates for a degree, may be admitted to the School of Pharmacy without conforming to the requirements for entrance. The admission of such students is under the control of the Dean, and his certificate of recommendation must be procured before the student presents himself to the Registrar.

## FEES AND EXPENSES.

(For fees and expenses, see page 59.)

## POSITIONS FOR GRADUATES.

As an adjunct to the Pharmaceutical Society, an "annex" was established in 1890, whose aim it is to secure positions for graduates, and clerks for employers, who are graduates of the school. At present the demand is greater than the supply.

## LIBRARY.

The school possesses an extensive library, and is the regular recipient of the leading pharmaceutical journals and periodicals of America, England, Germany, and France.

The pharmaceutical library is also custodian of a very generous gift by Parke, Davis & Co. of a library consisting of pharmacy and medical journals. These are of great value in research and investigational work.

For the convenience of students in chemistry and pharmacy, a branch library is provided in the building and adjacent to the chemical and pharmaceutical laboratories, where all the principal reference books and periodicals may be found.

## COLLECTIONS.

The Pharmacy School possesses an extensive herbarium of medicinal plants, together with a collection of photographs representing nearly 200 species. This, in conjunction with the large



herbarium of the botanical department, is available to students. Several hundred microscope slides are at hand for use with the projection lantern, showing various drugs in cross and longitudinal section, as well as in powdered form; a large assortment of lantern slides, illustrating plants, drugs, prescriptions, pharmacies, and places and subjects of pharmaceutical interest, several cases of crystal models, an extensive collection of official and unofficial salts, alkaloids, drugs and medicines, besides numerous smaller collections of particular interest.

### LOCATION.

The School of Pharmacy occupies the first two floors and basement of the east wing of the Chemistry and Pharmacy Building.

Laboratory instruction for pharmacy students is also given in the laboratories of the following departments: Chemistry [bacteriology], botany, mineralogy, physiology, and physics.

### APPARATUS.

For the various practical courses offered by this school a large amount of laboratory apparatus, of domestic and foreign types, is supplied. The various laboratories are equipped for manufacturing purposes, so that any preparation of the United States Pharmacopœia can be made by any of the official methods, and, in addition, appliances and materials are at hand for the unofficial and extra-pharmacopœial products.

The lecture table is abundantly supplied with illustrative apparatus, so that the student may see before him the various processes in operation which may be carried on in the laboratories and at the prescription counters. Care has been taken to illustrate pharmacy in all its phases.

### REGISTRATION—STATE BOARD OF PHARMACY.

Graduates of the School of Pharmacy may become registered pharmacists in Kansas without examination upon presenting to the State Board of Pharmacy satisfactory evidence of having had the required amount of practical experience. The practical experience required for the different courses is as follows:

Thirty months for graduates of the two-year course.

Twenty-one months for graduates of the three-year course.

Twelve months for graduates of the four-year course.

### A SUMMER SCHOOL COURSE.

During the summer of 1911, beginning June 8, a course of six weeks in pharmacy will be offered.

This course is designed especially for drug clerks of mature

years who are desirous of an opportunity to increase their knowledge and efficiency in a short time.

Clerks who desire to prepare themselves for State Board of Pharmacy examination will find this course especially adapted to their needs.

Instruction will be given in pharmacy, pharmaceutical chemistry, materia medica, prescriptions, and identification. Supplemental work will be given in the excellently equipped laboratories of the school, and particular attention will be given to preparing and dispensing drugs in accordance with the "pure food and drugs law."

The Summer School course will be especially valuable to those who desire practical drill in connection with their correspondence course.

This course is open to all who are qualified to pursue it to advantage; no formal entrance requirements are exacted.

A record will be kept of all work done of university grade and such work will be credited towards a degree when the candidate has fulfilled the requirements for entrance to the regular course. (See page 301.)

**FEES AND EXPENSES.**—The fees for the Summer School will be ten dollars for Kansas students; for nonresidents, fifteen dollars. For the laboratory work there will be, in addition, the cost of material.

For further information, address Prof. L. D. Havenhill, Lawrence, Kan.

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## CORRESPONDENCE-STUDY DEPARTMENT.

### UNIVERSITY EXTENSION DIVISION.

#### PHARMACY.

LUCIUS E. SAYRE, PH. M.,

Dean, and Professor of Pharmacy and Materia Medica.

L. D. HAVENHILL, PH. M., Professor of Pharmaceutical Chemistry.

IDA H. HYDE, PH. D., Professor of Physiology.

#### PHARMACY CORRESPONDENCE COURSE.

These courses provide many opportunities to those who cannot attend the University. Among them are: (1) Home-study courses, for persons who contemplate the vocation of pharmacy but lack some of the entrance requirements exacted by the preliminary education demanded by the State Board of Pharmacy; (2) means of preparing for registered assistant pharmacist; (3) means of preparing for registered pharmacist's examination; (4) means of keeping abreast of the times in those subjects applicable to the practice of pharmacy, in which science is making additions to our knowledge.

The fees will be those regularly required in the School of Pharmacy (see page 59). The additional expense for material used in resident work will, with economy, range from \$8 to \$12 per six weeks' session.

A new course is offered leading to the Degree of Graduate in Pharmacy (Ph. G.), which is intended primarily to foster the spirit of apprenticeship and to establish a more cordial relation between apprentice and preceptor, and thus advance the interests of pharmacy as a vocation.

The course will consist of forty assignments each in the following branches and their subdivisions: (a) Chemistry, (b) materia medica, (c) pharmacy, and two Summer Sessions of six weeks each in the laboratories of the School of Pharmacy at Lawrence. The course is intended to extend over two calendar years (sixty assignments per year). Students taking this course are subject to the regulations of the Correspondence-Study Department (see page 13).

Candidates for the degree of Ph. G. must be of good moral character and have completed the prescribed course of study with a rating of not less than 70 per cent in each subject. Evidence must be furnished that the candidate has had four years' practical experience in a store where physicians' prescriptions are regularly compounded and drugs and medicines sold.

#### ORDER OF STUDY RECOMMENDED LEADING TO DEGREE OF PH. G. FIRST YEAR.

<i>By Correspondence.</i>	<i>Summer Session in Residence.</i>
A I, 20 assignments.	A III.
B I, 10        "	C VII.
B II, 10       "	Quiz and recitation, 1 hr. daily.
C I, 8         "	
C II, 7        "	
C III, 5       "	
<hr/> Total, 60 assignments.	

#### SECOND YEAR.

<i>By Correspondence.</i>	<i>Summer Session in Residence.</i>
B II, 20 assignments.	A IV.
B III, 15       "	B V.
B IV, 5         "	C VIII.
C IV, 15       "	Quiz, 1 hr. daily.
C V, 3          "	
C VI, 2         "	
<hr/> Total, 60 assignments.	

## DESCRIPTION OF COURSE LEADING TO DEGREE OF PH. G.

*Pharmaceutical Chemistry.*

- A I.—Elementary Pharmacy Physics, and Pharmacy Inorganic Chemistry. First year, 20 assignments.
- A II.—Organic Pharmacy Chemistry, including a discussion of the organic chemicals of pharmacal interest. Should follow course A I. Second year, 20 assignments.
- A III.—Pharmaceutical Analytical Chemistry, Inorganic, Qualitative and Quantitative, as applied in pharmaceutical testing. Given in resident Summer Session and to those who have passed course A I. First year.
- A IV.—Pharmaceutical Analytical Chemistry, Organic, Qualitative and Quantitative, as applied in pharmaceutical testing. Given only in resident Summer Session and to those who have passed A II and A III. Second year.

*Materia Medica.*

- B I.—A brief outline of Physiology and introduction to the subject of Materia Medica. First year, 10 assignments.
- B II.—Pharmacognosy, with botanical introduction. First year, 10 assignments.
- B III.—Pharmacological and Therapy Dynamics. Given only to those who have passed course B II. Second year, 15 assignments.
- B IV.—Toxicology and Posology. Given in connection with B III. Second year, 5 assignments.
- B V.—Histological Pharmacognosy. Given only in Summer Session (resident) and to those who have passed course B II. Second year.

*Pharmacy.*

- C I.—Metrology, Specific Gravity, and Pharmaceutical Arithmetic. First year, 8 assignments.
- C II.—Descriptive Pharmacy. Terms, processes and apparatus used in pharmaceutical operations. First year, 5 assignments.
- C III.—Official Pharmacy. The pharmaceutical classification of medicines. First year, 5 assignments.
- C IV.—Official Pharmacy. A critical discussion of the pharmaceutical preparations. Given only to those who have passed course C III. Second year, 15 assignments.
- C V.—Pharmaceutical Latin and Principles of Prescription Writing. Second year, 3 assignments.
- C VI.—Pharmaceutical Jurisprudence. Second year, 2 assignments.
- C VII.—Manufacturing Pharmacy. Given only in resident Summer Session to those who have passed courses A I and C I and II and III. First year.



*Pharmacy.*

C VIII.—Extemporaneous Pharmacy. Given only in resident Summer Session to those who have passed course C VII. Second year.

*Quizzes.*

Daily quizzes, written and oral, covering the scope of the assignments will be the feature of the summer resident work.

The grades and attendance in these quizzes will play an important part in determining the candidate's fitness for graduation.

The following courses correspond to similar courses offered in residence at the University of Kansas. The studies may be taken for credit, to apply in the regular Pharmacy course, by those who possess the essential entrance requirements.

*Botany.**Assignments. Hours credit.*

I.—General Morphology of Plants.....	40	5
II.—Plant Histology .....	40	5.

*Chemistry.*

I.—Elementary Chemistry .....	40	5
II.—Quantitative Analysis .....	40	5

*English.*

I.—Rhetoric and English Composition...	40	5
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*French.*

I.—Elementary French, Part A.....	40	5
II.—Elementary French, Part B.....	40	5

*German.*

I.—German Grammar .....	40	5
II.—German Reader .....	40	5
III.—German Prose .....	40	5
IV.—Schiller's Wallenstein .....	40	5

*Mathematics.*

I.—Solid Geometry .....	20	2½
II.—University Algebra .....	24	3
III.—Plane Trigonometry .....	16	2
IV.—Analytical Geometry .....	32	4

*Physics.*

I.—Elementary Physics .....	24	3
II.—Sound, Light and Electricity.....	24	3

Further information concerning the scope of the above courses will be found under the proper heading in the description of courses in the School of Pharmacy.

## PHARMACY AND MATERIA MEDICA.

The following technical courses correspond to similar courses offered in residence at the University of Kansas. The studies may be taken for credit, to apply in the regular pharmacy course, by those who possess the essential entrance requirements.

**COURSE 1.—INTRODUCTORY PHARMACY.** Professor Sayre and Professor Havenhill. This course consists of two parts, A and B. Course A is designed to acquaint the student with the apparatus and instruments and to familiarize him with the operations and manipulations necessary to carry out pharmaceutical processes and physical tests. Course B covers the study of preparations and processes of the United States Pharmacopœia and National Formulary. Twenty assignments, two and one-half hours' pharmacy credit.

**SUMMER SCHOOL.** Students who find it desirable to supplement the work in the course by laboratory practice in pharmaceutical manipulation will be provided in the Summer School course with ample facilities for such work.

**COURSE 2.—ORGANIC MATERIA MEDICA.** Professor Sayre. This course embraces the classification, physical description and chemical constitution of the crude drugs of the pharmacopœias; their chemical and physiological properties; methods of prescribing and dispensing; the action of organic and inorganic chemicals and their physiological relationships. Twenty assignments, two and one-half hours' pharmacy credit.

**COURSE 3.—PHARMACY PHYSIOLOGY.** Professor Hyde. This course is designed to meet the needs of pharmacists and to fulfill the legal requirements for pharmacists in the state of Kansas, and corresponds to the course offered in the School of Pharmacy. It is a brief course in physiology and hygiene, consisting of recitation and demonstration based upon the essential structures and functions of the human body, supplemented by practical laboratory experiments. The treatment of emergency cases, observations on the action of drugs upon the tissues, the relation of the different organs and bones to each other, and the structure of the chief tissues, are some of the subjects dealt with. Twenty assignments, two and one-half hours' pharmacy credit.

## PROGRAM OF STUDIES.

The School of Pharmacy offers three complete programs of study, one of two years and one of three years—both leading to the degree of pharmaceutical chemist—and one of four years, leading to the degree of bachelor of science.

### THE TWO-YEAR PROGRAM.

This is the regular course in pharmacy, first established by an act of the legislature, and leads to the degree of pharmaceutical chemist (Ph. C.) The curriculum is confined to pharmaceutical work. The higher work of the other courses gives greater breadth of training, and prepares students for service with larger concerns and with manufacturing chemists.

### THE THREE-YEAR PROGRAM.

This course is endorsed by the Kansas Pharmaceutical Association, and is especially recommended to those students who have had no drug-store experience and to those who have entrance deficiencies. Special opportunities are offered in this course for work in the field of drug standardization and analysis. The course leads to the degree of Ph. C. Besides the diploma, a special certificate of proficiency is issued by the Dean upon the completion of the course of study outlined.

### THE FOUR-YEAR PROGRAM.

This course, leading to the degree of bachelor of science, from which the student graduates on a plane with the regular students of the College, opens the door, as does the bachelor of arts degree, to the degree of master of arts or doctor of philosophy, should the student desire to pursue his studies to that extent, and thus prepare himself for the higher calling of educational or higher technical work.

## TWO-YEAR COURSE.

Leading to the Degree of Pharmaceutical Chemist.

### JUNIOR YEAR.

#### *First Semester:*

Pharmacal Botany, (a), 8 to 10. Assistant Professor Sterling.  
Plant Histology I, (b), 8 to 10. Assistant Professor Sterling.  
Introductory Pharmacy, (a and b), Tuesday and Thursday,  
10:15 to 11:15. Professor Havenhill.

Pharmaceutical Arithmetic, (a and b), Monday, Wednesday,  
and Friday, 10:15 to 11:15. Professor Havenhill.

*First Semester:*

## JUNIOR YEAR.

Introductory Chemistry, (*a* and *b*), 1:30 to 3:30. Professor Bailey.

Materia Medica I, (*b*), 11:15 to 12:15. Professor Sayre.

*Second Semester:*

Plant Histology II (Elementary Pharmacognosy), (*a*), 8 to 10. Assistant Professor Sterling.

Pharmacognosy, (*b*), 9 to 10. Assistant Professor Sterling.

Official Pharmacy, (*a*), 10:15 to 11:15. Assistant Professor Watson.

Inorganic Medicinal Salts, (*b*), 10:15 to 11:15. Professor Havenhill.

Qualitative Analysis, (*a* and *b*), 1:30 to 3:30. Mr. Nash.

## SENIOR YEAR.

*First Semester:*

Physiology, (*a*), 8 to 10. Professor Hyde.

Urinalysis, (*b*), 8 to 10. Assistant Professor Emerson.

Galenical Preparations, (*a* and *b*), 3:30 to 5:30. Assistant Professor Watson.

Organic Chemistry, (*a* and *b*), 1:30 to 3:30. Associate Professor Bushong and assistant.

Quantitative Analysis, (*a*), 10:15 to 12:15. Assistant Professor Nash.

Pharmaceutical Testing, (*b*), 10:15 to 12:15. Assistant Professor Emerson.

*Second Semester:*

Drug Analysis, (*a* and *b*), 8 to 10. Professor Havenhill.

Theory and Practice, (*a*), 10:15 to 11:15. Professor Havenhill.

Materia Medica, Pharmacology and Toxicology, (*a* and *b*),\* 11:15 to 12:15. Professor Sayre.

Dispensing, (*a*), 3:30 to 5:30. Assistant Professor Emerson.

Examination of Powdered Drugs, (*a*), 1:30 to 3:30. Assistant Professor Sterling.

Thesis, (*b*), 1:30 to 3:30. Professor Sayre.

## THREE-YEAR COURSE.

Leading to the Degree of Pharmaceutical Chemist.

## FIRST YEAR.

*First Semester:*

Pharmacal Botany, (*a*), 8 to 10. Assistant Professor Sterling.

Plant Histology, (*b*), 8 to 10. Assistant Professor Sterling.

Introductory Chemistry, (*a* and *b*), 1:30 to 3:30. Professor Bailey.

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\* (*a*) For medical and (*b*) for medical and pharmacy students.



*First Semester:* FIRST YEAR.

Pharmaceutical Arithmetic, (*a* and *b*), Monday, Wednesday, and Friday, 10:15 to 11:15. Professor Havenhill.

Introductory Pharmacy, (*a* and *b*), Tuesday and Thursday, 10:15 to 11:15. Professor Havenhill.

*Second Semester:*

Plant Histology II (Elementary Pharmacognosy), (*a*), 8 to 10. Assistant Professor Sterling.

Pharmacognosy, (*b*), 9 to 10. Assistant Professor Sterling.

Qualitative Analysis, (*a* and *b*), 1:30 to 3:30. Mr. Nash.

Official Pharmacy, (*a*), 10:15 to 11:15. Assistant Professor Watson.

Inorganic Medicinal Salts, (*b*), 10:15 to 11:15. Professor Havenhill.

## SECOND YEAR.

*First Semester:*

Materia Medica I, (*b*), 11:15 to 12:15. Professor Sayre.

Organic Chemistry, (*a* and *b*), 1:30 to 3:30. Associate Professor Bushong.

Quantitative Analysis,\* (*a* and *b*), 3:30 to 5:30. Assistant Professor Allen.

*Second Semester:*

Drug Analysis, (*a* and *b*), 8 to 10. Professor Havenhill.

Examination of Powdered Drugs, (*a*), 1:30 to 3:30. Assistant Professor Sterling.

Plant Analysis (elective), (*b*), 1:30 to 3:30. Professor Havenhill.

## THIRD YEAR.

*First Semester:*

Physiology, (*a*), 8 to 10. Professor Hyde.

Galenical Preparations, (*a* and *b*), 3:30 to 5:30. Assistant Professor Watson.

Bacteriology, (*a* and *b*), 1:30 to 3:30. Professor Barber.

Pharmaceutical Testing, (*b*), 10:15 to 12:15. Assistant Professor Emerson.

*Second Semester:*

Thesis, (*b*), 9 to 11:15. Professor Sayre.

Theory and Practice, (*a*), 10:15 to 11:15. Professor Havenhill.

Materia Medica, Pharmacology and Toxicology (*a* and *b*),† 11:15 to 12:15. Professor Sayre.

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\* These five-hour courses are recommended; students may substitute the two and one-half hour courses of the two year course.

† (*a*) For medical and (*b*) for medical and pharmacy students.

*Second Semester:*

## THIRD YEAR.

Physiological Chemistry, (*a* and *b*), 1:30 to 3:30. Assistant Professor Emerson.

Dispensing, (*a*), 3:30 to 5:30. Assistant Professor Emerson.

## FOUR-YEAR COURSE.

Leading to the Degree of Bachelor of Science in Pharmacy.

We recommend that candidates for the degree of bachelor of science in pharmacy shall complete, as far as possible, by the end of the Sophomore year, the following studies: German I to IV; French I and II; chemistry I, II and III; botany I and II; mathematics, 5 hours; physics, 10 hours; English, 5 hours; physiology, 5 hours.

They must have sixty hours' credit in the College at the end of their Sophomore year.

## JUNIOR YEAR.

*First Semester:*

Pharmacal Botany,\* (*a*), 8 to 10. Assistant Professor Sterling.

Plant Histology I,\* (*b*), 8 to 10. Assistant Professor Sterling.

Introductory Pharmacy, (*a*), 10:15 to 11:15. Professor Havenhill.

Pharmaceutical Arithmetic, (*b*), 10:15 to 11:15. Professor Havenhill.

Organic Chemistry, (*a* and *b*), 1:30 to 3:30. Associate Professor Bushong and assistant.

Quantitative Analysis, (*a* and *b*), 3:30 to 5:30. Assistant Professor Allen.

Materia Medica, (*b*), 11:15 to 12:15. Professor Sayre.

*Second Semester:*

Plant Histology and Elementary Pharmacognosy, (*a*), 8 to 10. Assistant Professor Sterling.

Pharmacognosy, (*b*), 9 to 10. Assistant Professor Sterling.

Official Pharmacy, (*a*), 10:15 to 11:15. Assistant Professor Watson.

Inorganic Medicinal Salts, (*b*), 10:15 to 11:15. Professor Havenhill.

Physiological Chemistry, (*a* and *b*), 1:30 to 3:30. Assistant Professor Emerson.

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\* If 10 hours of botany have been taken in College it will be substituted here.

## SENIOR YEAR.

*First Semester:*

Physiology,<sup>†</sup> (a), 8 to 10. Professor Hyde.

Galenical Preparations, (a and b), 3:30 to 5:30. Assistant Professor Watson.

Bacteriology, (a and b), 1:30 to 3:30. Professor Barber.

Pharmaceutical Testing, (b), 10:15 to 12:15. Assistant Professor Emerson.

*Second Semester:*

Drug Analysis, (a and b), 8 to 10. Professor Havenhill.

Theory and Practice, (a), 10:15 to 11:15. Professor Havenhill.

Materia Medica, Pharmacology and Toxicology, (a and b),<sup>‡</sup> 11:15 to 12:15. Professor Sayre.

Examination of Powdered Drugs, (a), 1:30 to 3:30. Assistant Professor Sterling.

Dispensing, (a), 3:30 to 5:30. Assistant Professor Emerson.

Thesis, (b), 1:30 to 3:30. Professor Sayre.

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<sup>†</sup> If 5 hours of physiology have been taken in the College it will be substituted here.

<sup>‡</sup> (a) For medical students and (b) for medical and pharmacy students.

## DESCRIPTION OF COURSES IN THE SCHOOL OF PHARMACY.

### BOTANY AND PHARMACOGNOSY.

Professor STEVENS.  
Professor SAYRE.  
Professor BARBER.  
Assistant Professor STERLING.

1.—PHARMACAL BOTANY. Two and one-half hours' credit. An introduction to morphology and taxonomy of phanerogams. Laboratory work, recitations, and lectures. Required of Juniors entering without credit in botany. First semester, (a), 8 to 10. Assistant Professor Sterling.

2.—ELEMENTARY BOTANY. Five hours, second semester, 1:30 to 3:30. An introduction to the forms and parts of plants, and the way typical plants perform their functions and conform to their environment. This course, or the equivalent in other schools, is a prerequisite to course III. Laboratory work, ten hours a week; reading, recitations and lectures. Professor Stevens, Assistant Professor Sterling and assistant.

3.—PLANT HISTOLOGY. Five hours, first semester, 1:30 to 3:30. A study of plant tissues, with special reference to their development and functions; plant products, their origin and physiological and biological significance; histological technique. Laboratory work, ten hours a week, recitations and lectures. Prerequisite, course I. Professor Stevens and assistant.

4.—PLANT HISTOLOGY. Two and one-half hours' credit. A study of the plant tissues; histological technique and the preparation of specimens. Open to all students who have had courses 1 or 3. Laboratory work, lectures and recitations. First semester, (b), 8 to 10. Assistant Professor Sterling.

5.—PLANT HISTOLOGY AND INTRODUCTION TO PHARMACOGNOSY. Two and one-half hours' credit. A continuation of course 4. Laboratory work, lectures, and recitations. Second semester, (a), 8 to 10. Assistant Professor Sterling.

6.—PHARMACOGNOSY. Two and one-half hours' credit. A study of the geographical distribution, origin and physical characteristics of crude drugs. Lectures, recitations, and laboratory work. Must be preceded by course 3 or 5. Junior, second semester, (b), 9 to 10. Assistant Professor Sterling.

7.—BACTERIOLOGY. Five hours' credit. Bacteriological technique. Pathogenic bacteria, and other forms of economic importance. Laboratory work, reading, and lectures. First semester, (a and b), 1:30 to 3:30. Professor Barber.



8.—THE ANALYSIS OF POWDERED DRUGS, SPICES, AND FOODS. Laboratory work, lectures, and recitations. Must be preceded by course 6. Second semester, (a), 1:30 to 3:30. Assistant Professor Sterling.

### CHEMISTRY.

Professor BAILEY.  
Professor SAYRE.  
Professor HAVENHILL.  
Associate Professor BUSHONG.  
Assistant Professor EMERSON.  
Assistant Professor ALLEN.  
Mr. NASH.

36.—INTRODUCTORY CHEMISTRY. Five hours' credit. A study of the chemical elements and their compounds. Experimental lectures, recitations, and laboratory work. Junior, first semester, (a and b), 1:30 to 3:30. Assistant Professor Allen and assistants.

37.—PHARMACY QUALITATIVE ANALYSIS. Five hours' credit. The isolation and identification of the important elements in mixtures and compounds. Textbook, Bailey and Cady's Guide to the Study of Qualitative Analysis. Must be preceded by course 36 or College courses 1 and 2. Lectures, recitations and laboratory work. Junior, second semester, (a and b), 1:30 to 3:30. Assistant Professor Nash.

38.—PHARMACY QUANTITATIVE ANALYSIS. Two and one-half hours' credit. A course especially adapted to the needs of the pharmacist, involving the simpler methods of gravimetric and volumetric analysis. Lectures and laboratory work. Must be preceded by course 37. Senior, first semester, (a), 10:15 to 12:15. Assistant Professor Allen.

8.—QUANTITATIVE ANALYSIS. Five hours' credit. A course similar to 38, extending over whole semester. First semester, (a and b), 3:30 to 5:30. Assistant Professor Allen.

13.—ORGANIC CHEMISTRY. A study of the hydrocarbons and their derivatives. Lectures and recitations, Monday, Wednesday, and Friday; laboratory work, Tuesday and Thursday. Must be preceded by course 36. Senior, first semester, (a and b), 1:30 to 3:30. Associate Professor Bushong and assistant.

\*44.—PHARMACEUTICAL TESTING I. Two and one-half hours' credit. Laboratory practice in testing the purity and strength of the inorganic medicinal chemicals of the United States Pharmacopœia. Must be preceded by course 38 or equivalent. First semester, (b), 10:15 to 12:15. Assistant Professor Emerson.

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\* Courses 40, 44, 46 and 50 are especially recommended for those students who are preparing themselves for responsible positions as registered pharmacists; as proprietors of pharmacies, and as pharmaceutical chemists; for special work in analysis of drugs and medicines, now regulated by the pure food and drug law. The demand for pharmaceutical chemists in large establishments is one that the school will aim to supply, and the courses referred to will prepare students to occupy such positions.

\*40.—URINE AND STOMACH ANALYSIS. A ten-weeks course of lectures, recitations and laboratory work in stomach and urine analysis. Must be preceded by courses 36, 37, 38, and 13. First semester, (b), 8 to 10. Assistant Professor Emerson.

41.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours' credit. This course is offered to meet the requirements of medical students. Products of physiological interest are separated from animal tissues and organs and studied in detail. Special attention is given to the study of carbohydrates, proteins, and the normal and abnormal products of animal life. The second part of the course consists of five weeks of urinalysis, embracing lectures, recitations, and work in both chemical and microscopical laboratories. Second semester, 1:30 to 3:30. Professor Sayre and Assistant Professor Emerson.

42.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Analysis of such dietetics as are used in medicine, and the quantitative estimation of digestive ferments; the preparation of proximate constituents from animal tissues. Must be preceded by course 41, and is open to all students who have passed that subject. Professor Sayre and Assistant Professor Emerson.

43.—FOOD ANALYSIS. A five-hour course in the study of food-stuffs and their analysis. This course is arranged especially for students who are preparing to be food and drug chemists. Assistant Professor Jackson.

47.—PLANT ANALYSIS I. Two and one-half hours. The separation and estimation of the proximate principles of plants. Must be preceded by course 38 or equivalent. Elective, hours by appointment. Professor Havenhill.

48.—PLANT ANALYSIS II. Two and one-half hours. A systematic course of advanced work in the analysis of the chemical constituents of plants. Must be preceded by course 47. Elective, hours by appointment. Professor Sayre.

\*46.—DRUG ANALYSIS. Five hours. The detection and estimation of potent drugs. Must be preceded by a course in quantitative analysis. Second semester, 8 to 10. Professor Havenhill.

\*50.—DRUG ASSAYING. Two and one-half hours' credit. Advanced work in the valuation and standardization of drugs. A research course, consisting of lectures, laboratory and library work, designed especially for those who desire to do advanced work in the subject. Must be preceded by courses 36 to 40. By appointment. Professor Sayre.

49.—ANALYSIS OF NOSTRUMS. Determination of composition of articles with secret formulas. Professor Sayre.

45.—PHARMACEUTICAL TESTING II. Two and one-half hours. Laboratory practice in testing the strength and purity of the or-

ganic chemicals of the United States Pharmacopœia. Must be preceded by a course in quantitative analysis. Elective, hours by appointment. Professor Havenhill.

51.—**DRUG ANALYSIS II.** A continuation of Drug Analysis I. Two and one-half hours' laboratory practice in the qualitative and quantitative analysis of medicinal preparations, according to pharmacopœial and other approved methods. Elective, hours by appointment. Professor Havenhill.

### FRENCH.

Professor GALLOO.  
Assistant Professor NEUEN SCHWANDER.  
Assistant Professor WARD.  
Mr. WINTER.

1.—**ELEMENTARY COURSE.** Five hours. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation and in forms. First semester. Five divisions. Daily, at 8, 9, 10:15, 11:15, or 1:30. Prerequisite, three years of Latin or three years of German. Professor Galloo, Assistant Professor Neuen Schwander, Assistant Professor Ward, or Mr. Winter.

2.—**ELEMENTARY COURSE.** Five hours. A continuation of course 1. Reading of simple prose texts, with exercises in dictation and elementary composition. Second term, daily, at 11:15. Professor Galloo, Assistant Professor Neuen Schwander, Assistant Professor Ward, or Mr. Winter.

### GERMAN.

Professor CARRUTH.  
Associate Professor ENGEL.  
Assistant Professor CORBIN.  
Assistant Professor KRUSE.  
Assistant Professor CAMPBELL.  
Assistant Professor BRIGGS.  
Assistant Professor STURTEVANT.  
Mr. SPINDLER.  
Miss WILSON.

1.—**GERMAN GRAMMAR.** Five hours. Carruth's Otis's Grammar, with composition exercises. Carruth's Reader, about fifty pages. First semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30; second semester, daily, at 1:30. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Miss Wilson, and Mr. Spindler.

2.—**GERMAN READER,** completed, and SCHILLER'S WILHELM TELL (complete). Five hours. Also special exercises, in word order and auxiliary verbs and sight-reading. Second semester, daily, at 8, 9, 11:15, and 1:30; first semester, daily, at 2:30. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Pro-

fessor Briggs, Assistant Professor Sturtevant, Miss Wilson, and Mr. Spindler.

3.—GERMAN PROSE. Five hours. Lessing's *Minna von Barnhelm*. Sight-reading. First semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 3:30; second semester, daily, at 9, 2:30, and 3:30. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, and Mr. Spindler.

### MATHEMATICS.

Professor YOUNG.  
Associate Professor VAN DER VRIES.  
Assistant Professor ASHTON.  
Assistant Professor MITCHELL.  
Assistant Professor PITCHER.

1.—SOLID GEOMETRY. Three hours, second semester, at 1:30. The usual theorems and constructions of standard textbooks and applications to the mensuration of surfaces and solids. Wentworth's *Solid Geometry*. Open to all students who do not offer solid geometry for entrance. Assistant Professor Mitchell.

2.—COLLEGE ALGEBRA. Three hours, both semesters—first semester, at 8, 9, 10:15, 11:15, 2:30; second semester, at 8, 9, and 2:30. Rapid review of exponents, radicals, and quadratic equations; graphical representation; complex numbers; logarithms; determinants; theory of equations; numerical equations of higher degree. Ashton's *College Algebra*. Assistant Professor Mitchell.

3.—PLANE TRIGONOMETRY. Two hours, both semesters—first semester, at 8, 9, 10:15, 11:15, and 2:30; second semester, at 8, 9, and 2:30. The six trigonometric functions; principal formulas of plane trigonometry; solution of triangles and practical problems. Ashton's *Trigonometry*. May be taken at the same time with course 1 or 2. Assistant Professor Mitchell.

4.—ANALYTIC GEOMETRY I. Two hours, both semesters—first semester, at 10:15 and 11:15; second semester, at 8, 9 and 2:30. The straight line and circle; plane and sphere; loci problems. Fine and Thompson's *Coördinate Geometry*. Open to all students who have completed courses 2 and 3. Assistant Professor Mitchell.

6.—ANALYTICAL GEOMETRY II. Two hours—first semester, at 11:15, second semester, at 10:15. Conic sections; higher plane curves; solid analytics. Fine and Thompson's *Coördinate Geometry*. Open to students who have completed course 4. Mr.

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## PHARMACY AND MATERIA MEDICA.

Professor SAYRE.  
Professor BAILEY.  
Professor HAVENHILL.  
Assistant Professor EMERSON.  
Assistant Professor WATSON.

1.—PHARMACEUTICAL ARITHMETIC. Three hours. A study of weights, measures, specific gravity, and the principles of pharmaceutical arithmetic. Lectures and recitations. First semester, (*a* and *b*), Monday, Wednesday, and Friday, 10:15 to 11:15. Professor Havenhill.

2.—INTRODUCTORY PHARMACY. Two hours. The history of the Pharmacopœia and a study of the apparatus and processes employed in the preparation of medicines. Lectures and recitations. First semester, (*a* and *b*), Tuesday and Thursday, 10:15 to 11:15. Professor Havenhill.

3.—OFFICIAL PHARMACY. Two and one-half hours' credit. A systematic study of the official preparations, including their classifications, preparation, and preservation. Must be preceded by course 1. Lectures and recitations. Second semester, (*a*), 10:15 to 11:15. Assistant Professor Watson.

4.—GALENICAL PREPARATIONS. Five hours' credit. Practical work in the manufacture of standard medicinal preparations, as contained in the Pharmacopœia and National Formulary. Laboratory work and recitations. Must be preceded by course 1. Senior, first semester, (*a* and *b*), 3:30 to 5:30. Assistant Professor Watson.

5.—INORGANIC MEDICINAL SALTS. Two and one-half hours' credit. The source, manufacture, physical properties, general and specific characteristics and identity of inorganic substances used in medicine. Lectures, recitations, and laboratory work. Must be preceded by introductory chemistry. Junior, second semester, (*b*), at 10:15. Professor Havenhill.

6.—MATERIA MEDICA I. Two and one-half hours' credit. A critical study of the drugs and preparations of the U. S. Pharmacopœia and National Formulary. Lectures and recitations. Junior, first semester, (*b*), 11:15 to 12:15. Professor Sayre.

7.—ORGANIC MATERIA MEDICA AND PHARMACOLOGY. Four hours. The classification, physical description and chemical constitution of the crude drugs of the pharmacopœias; their chemical and physiological properties, and therapeutic application; methods of prescribing and dispensing; the action of organic and inorganic chemicals and their physiological relationships. Lectures and recitations. Senior, second semester, (*a* and *b*), Monday, Tuesday, Wednesday, and Thursday, at 11:15. Professor Sayre.

8.—TOXICOLOGY. One hour. Lectures on the sources, properties, methods for detection and antidotes for poisons. Must be preceded by introductory chemistry. Senior, second semester, Thursday, at 11:15. Professor Bailey.

9.—THEORY AND PRACTICE OF PHARMACY AND PHARMACEUTICAL CHEMISTRY II. Two and one-half hours' credit. A critical review of the official and unofficial organic chemicals used in medicine—volatile oils, alkaloids, glucosides, and a study of the impurities, adulterations, identifications, tests, etc. Senior, second semester, (a), 10:15 to 11:15. Professor Havenhill.

10.—DISPENSING. Two and one-half hours' credit. Compounding of prescriptions and a practical study of incompatibilities. Lectures and laboratory work. Senior, second semester, (a), 3:30 to 5:30. Assistant Professor Emerson.

11.—THESIS. Two and one-half hours' credit. Original research in one of the subjects connected with the pharmaceutical profession. An outline of the work should be presented to the Dean by the middle of the second semester. Senior, second semester, (b), 1:30 to 3:30.

12.—LIBRARY WORK. Specially designed to familiarize the student with pharmaceutical literature; will include exercises in indexing and reviewing various topics. Second semester, (b), hours by appointment. Professor Sayre.

13.—PRACTICAL EXERCISES. Two and one-half hours' credit. These will include the care of the prescription room, stock taking, etc. Must be preceded by courses 1 and 4 and pharmacognosy. By appointment. Assistant Professor Emerson.

14.—Manufacture of artificial fruit essences and other compound ethers. Professor Sayre.

15.—PHARMACEUTICAL JURISPRUDENCE. Relating to the laws pertaining to pharmacy in different states, and to the laws pertaining to the mercantile business, together with practical business suggestions. A course of not less than ten lectures, given in connection with the Pharmaceutical Society. Hours by appointment. Professor Higgins.

16.—INTRODUCTORY PHARMACOLOGY. Two hours. A course designed for medical students, embracing metrology, and the processes and apparatus used in the preparation of medicines, including the elements of prescription writing and a brief outline of the official preparations. The work is supplemented by practical exercises in the pharmaceutical laboratory. First semester, 3:30 to 5:30. Professor Havenhill.

17.—LABORATORY WORK IN PHARMACOLOGY. This is an introductory course inaugurated in connection with the drug laboratory and Board of Health. It has become an absolute neces-

sity to provide means for ascertaining the physiological action of certain unknown compounds that are placed upon the drug market. As this work requires facilities for pharmacological investigation, it will be utilized for the purpose of instruction and research in connection with the Board of Health and in connection with the University Medical and Pharmacy Schools. The students electing this work will be obliged to arrange with the Dean, or the department of physiological chemistry, for the amount and kind of work he desires to perform, then appointments for such work as is desired in connection with the course in physiological chemistry and advanced materia medica will be allowed.

### PHYSICS.

Professor KESTER.

Assistant Professor STIMPSON.

1.—ELEMENTARY PHYSICS. Five hours, first semester. Lectures and recitations, Monday, Wednesday, and Friday, at 9, and two two-hour laboratory periods per week, Monday and Wednesday, from 3:30 to 5:30, or Tuesday and Thursday, from 8 to 10. Open to students of the College and of the Medical and Pharmacy Schools. This course is descriptive and experimental, and is intended for those who desire a general knowledge of the subject, and who have had no previous work in physics. Prerequisites, algebra and geometry. Assistant Professor Stimpson.

2.—ELEMENTARY PHYSICS. Five hours, second semester. A continuation of course 1, with the same schedule. Assistant Professor Stimpson.

Students who have received credit for entrance physics, one unit, may take either or both of the above courses and receive three-fifths of the regular credits above.

### PHYSIOLOGY.

Professor HYDE.

1.—PHYSIOLOGY. A brief course in physiology. Two and one-half hours' credit. Lectures and recitations, with demonstrations, based upon the essential structures and functions of the human body, are supplemented twice a week by practical work in the laboratory. The treatment of emergency cases, observations on the action of drugs upon tissues, the relations of the different organs and bones to each other and the structure of the chief tissues are some of the subjects undertaken by each student. Senior, first semester, (a), 8 to 10. Professor Hyde.

### PHARMACY.

Professor SAYRE.

Assistant Professor EMERSON.

For equipment, see under School of Pharmacy.

*For Graduates.*

100.—PHYTOCHEMISTRY (Plant Chemistry). Five hours, first or second semester. Original investigation and research work on the chemical constituents of plants, dealing especially with such constituents as exert a marked physiological action when introduced into the animal economy. Professor Sayre and Assistant Professor Emerson.

101.—ADVANCED COURSE IN THE CHEMISTRY OF DIGESTION. Lectures, recitation and laboratory work on the chemistry of digestion. The last half semester devoted to research work on the digestion of foodstuffs. Five hours, first semester. Professor Sayre and Assistant Professor Emerson.

102.—DRUG ANALYSIS. Five hours, first or second semester, by appointment. This course is arranged especially for those who are preparing to be food and drug chemists. Professor Havenhill.

The following courses are open to advanced undergraduates also. For description, see page 185:

150.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. Assistant Professor Emerson.

151.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Professor Sayre and Assistant Professor Emerson.



## VII. *The School of Medicine.*

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### FACULTY.

- FRANK STRONG, PH. D., President.  
WILLIAM H. CARRUTH, PH. D., Vice President.  
GEORGE HOWARD HOXIE, A. M., M. D., Professor of Internal Medicine, and Dean of the Clinical Department.  
MERVIN T. SUDLER, PH. D., M. D., Professor of Gynecology and Anatomy, and Dean of the Scientific Department.  
DAVID R. PORTER, M. D., Emeritus Professor of Medicine, and Lecturer on Life Insurance.  
EDGAR H. S. BAILEY, PH. D., Professor of Chemistry.  
CLARENCE E. MCCLUNG, PH. D., Professor of Zoölogy.  
IDA H. HYDE, PH. D., Professor of Physiology.  
LUCIUS E. SAYRE, B. S., Professor of Pharmacy.  
JAMES NAISMITH, M. D., Professor of Physical Education.  
MARSHALL A. BARBER, A. M., PH. D., Professor of Bacteriology and Pathology, and Director of the Clinical Laboratory.  
L. D. HAVENHILL, PH. M., B. S., Professor of Pharmaceutical Chemistry.  
JOHN FAIRBAIRN BINNIE, A. M., M. B., C. M., Professor of Surgery, and Head of the Department.  
EDWARD G. BLAIR, A. B., M. D., Clinical Professor of Surgery.  
JACOB BLOCK, M. D., Professor of Genito-urinary Surgery.  
JULIUS BRUEHL, M. D., Clinical Professor of Internal Medicine.  
WILLIAM J. FRICK, M. D., Clinical Professor of Surgery.  
S. S. GLASSCOCK, M. D., Professor of Neurology.  
GEORGE M. GRAY, M. D., Clinical Professor of Surgery.  
JEFFERSON DAVIS GRIFFITH, M. D., Clinical Professor of Surgery.  
GEORGE F. HAMEL, PH. G., M. D., Clinical Professor of Surgery.  
HENRY O. HANAWALT, M. D., Professor of Neurology, and Head of the Department.  
PETER D. HUGHES, A. M., M. D., Clinical Professor of Surgery.  
A. W. MCALESTER, A. B., M. D., Professor of Ophthalmology.  
GEORGE CLARK MOSHER, M. D., Professor of Obstetrics, and Head of the department.  
FRANKLIN E. MURPHY, M. D., Professor of Internal Medicine.  
JOHN WALTER PERKINS, A. B., M. D., Professor of Surgery (Surgical Diagnosis).  
JOSEPH E. SAWTELL, M. D., Professor of Rhinolaryngology, and Head of the Department.

- EDWARD W. SCHAUFFLER, A. M., M. D., Clinical Professor of Internal Medicine.
- ROBERT T. SLOAN, A. M., M. D., Professor of Internal Medicine, and Head of the Department.
- PRESTON STERRETT, M. D., Clinical Professor of Internal Medicine.
- ISADORE JULIUS WOLF, M. D., Professor of Internal Medicine.
- CHARLES H. LIDIKAY, M. D., Clinical Professor of Ophthalmology.
- JOHN H. OUTLAND, M. D., Clinical Professor of Surgery.
- GEORGE E. BELLOWS, A. B., M. D., Clinical Professor of Ophthalmology.
- SIMON B. LANGWORTHY, M. D., Adjunct Professor of Neurology.
- CHRISTIAN B. STEMEN, M. D., Adjunct Professor of Surgery.
- SAMUEL C. EMLEY, M. D.,\* Associate Professor of Bacteriology and Pathology.
- HAMILTON P. CADY, PH. D., Associate Professor of Chemistry.
- HAL FOSTER, A. B., M. D., Associate Professor of Rhinolaryngology.
- WILLIAM FRICK, A. M., M. D., Associate Professor of Dermatology, and Head of the Department.
- DON CARLOS GUFFEY, A. B., M. D., Associate Professor of Obstetrics and Gynecology.
- ARTHUR E. HERTZLER, M. D., Assistant Professor of Surgery.
- EARNEST J. LUTZ, M. D., Associate Professor of Internal Medicine.
- WILLIAM L. MCBRIDE, M. D., Associate Professor of Dermatology.
- ROBERT MCEWEN SCHAUFFLER, A. B., M. D., Associate Professor of Surgery.
- JOHN N. SCOTT, PH. G., M. D., Associate Professor of Electrotherapeutics, and Head of the Department.
- WILLIAM KIRK TRIMBLE, M. D., Associate Professor of Clinical Pathology.
- FREDERICK D. MORSE, A. M., M. D., Adjunct Professor of History of Medicine.
- CHARLES J. SIMMONS, A. B., M. D., Adjunct Professor of General Surgery.
- H. L. CHAMBERS, M. S., M. D., Adjunct Professor of Hygiene and Pathological Physiology.
- W. F. KUHN, A. M., M. D., Adjunct Professor of the Relation of the State to the Insane.
- O. M. LONGENECKER, M. D., Adjunct Professor of Therapeutics.
- HERBERT W. EMERSON, B. S., Assistant Professor of Pharmacy.
- MAX GOLDMAN, M. D., Assistant Professor of Pediatrics.
- JESSE E. HUNT, M. D., Assistant Professor of Pediatrics.
- HENRY H. LOOK, M. D., Assistant Professor of Ophthalmology.
- RICHARD E. SCAMMON, PH. D., Assistant Professor of Anatomy and Embryology.

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\* Absent on leave.

- RUSSELL A. ROBERTS, A. M., M. D., Assistant Professor of Surgery (Rectal Surgery).  
EDWARD H. THRAILKILL, M. D., Assistant Professor of Surgery (Rectal Surgery).  
WALTER S. SUTTON, M. D., Assistant Professor of Surgery.  
JOHN G. HAYDEN, M. D., Assistant Professor of Surgery.  
ANDREW L. SKOOG, M. D., Assistant Professor of Neurology.  
EUGENE SMITH, M. D., Demonstrator in Anatomy.  
FAY P. CLARK, M. D., Clinical Instructor in Electrotherapeutics.  
RICHARD C. LOWMAN, M. D., Instructor in Surgery.  
JOHN W. MILLER, M. D., Instructor in Internal Medicine.  
ZACHARIAH NASON, M. D., Instructor in Obstetrics.  
AMBROSE TALBOT, A. B., M. D., Instructor in Internal Medicine.  
PETER T. BOHAN, M. D., Instructor in Internal Medicine.  
CLARENCE B. FRANCISCO, M. D., Instructor in Surgery.  
LALIA V. WALLING, A. M., Instructor in Physiology.  
WILLIAM L. BURDICK, PH. D., Lecturer on Medical Jurisprudence.  
D. W. BASHAM, M. D., Lecturer on Surgery.  
CLAY COBURN, M. D., Lecturer on State Medicine.  
F. M. DAILY, M. D., Lecturer on Professional Ethics.  
JOHN A. DILLON, M. D., Lecturer on Oral Surgery.  
O. J. FURST, M. D., Lecturer on Climatology.  
CHARLES S. HUFFMAN, M. D., Lecturer on State Medicine.  
M. F. JARRETT, M. D., Lecturer on Professional Training and the Correction of Ocular Defects.  
RALPH A. LIGHT, M. D., Lecturer on Restriction of the Right to Practice.  
B. F. MORGAN, M. D., Lecturer on Anesthetics.  
R. J. MORTON, M. D., Lecturer on Exophthalmic Goitre.  
CLIFFORD C. NESSELRODE, M. D., Lecturer on Surgical Anatomy.  
J. E. OLDHAM, M. D., Lecturer on Surgery.  
CLIFFORD P. JOHNSON, M. D., Assistant in Physiology.  
CHARLES W. HOOPER, Assistant in Pathology.

## THE COUNCIL.

- SAMUEL C. EMLEY, A. B., M. D., Bacteriology and Pathology.  
EDGAR H. S. BAILEY, PH. D., Chemistry.  
CLARENCE E. MCCLUNG, PH. D., Zoölogy.  
LUCIUS E. SAYRE, B. S., PH. M., Pharmacy.  
HAMILTON P. CADY, PH. D., Chemistry.  
J. D. GRIFFITH, M. D., Surgery.  
J. E. SAWTELL, M. D., Special Subjects.  
G. C. MOSHER, M. D., Gynecology and Obstetrics.  
MARSHALL A. BARBER, A. M., PH. D., Clinical Pathology.  
EDWARD W. SCHAUFFLER, A. B., M. D., Internal Medicine.

# *The School of Medicine.*

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## HISTORY.

In the act of the legislature establishing the University there was contemplated the founding of a Medical School, but conditions were such that until recently it was not possible to carry out completely the plans which were then laid. Some steps were taken, as opportunity offered, to further the formation of a Medical School, and, in 1880, the "Preparatory Medical Course," under the administration of the College, was started. Until 1899 this was the only indication that the University was interested in the subject of medical education. In this year the School of Medicine was definitely organized, and the first two years of a modern course was offered to students. It was believed that the remaining two years could not profitably be attempted at Lawrence, and so the matter rested until it was thought feasible to put the clinical work upon a foundation sufficiently broad for the building of a Medical School that would compare favorably with the other schools of the University.

Such an establishment became possible through the generosity of Dr. Simeon B. Bell, of Rosedale, Kan., who in memory of his wife, Eleanor Taylor Bell, gave the University money and property sufficient to build and equip the necessary laboratories and to start a hospital.

## ORGANIZATION.

The work of the School of Medicine is organized under two major departments—the Scientific Department and the Clinical Department—each covering two years, and each having its own separate Faculty and organization.

### I. THE SCIENTIFIC DEPARTMENT.

The work of the first two years is given at Lawrence, under the direction of the Dean. It consists of the fundamental scientific branches, anatomy, histology, embryology, physiology, pathology, chemistry, bacteriology, etc., which are given in the well-equipped University laboratories. Medical students have all the advantages of libraries, museum and lectures that are to be found in a large educational institution.

Students should matriculate and register for the first two years at Lawrence.



## II. THE CLINICAL DEPARTMENT.

The third and fourth years are given in the laboratories and hospitals at Kansas City and Rosedale, under the charge of a dean. In the various hospitals and dispensaries the students have opportunities to work with about 100 ambulant patients daily, while the hospitals affiliated with the University contain some 600 beds. Students of the third and fourth years register with the Dean at Kansas City.

## COUNCIL OF THE SCHOOL OF MEDICINE.

The Council of the School of Medicine has charge of matters affecting the School of Medicine as a whole, subject to the rules of the Board of Regents, and is made up of the Chancellor of the University, chairman, the Deans of the two major departments, and five professors, clinical professors or associate professors, from each major department.

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I. *The Scientific Department.*

The Scientific Department of the School of Medicine, which consists of the fundamental and nontechnical courses, was organized in 1899, and has offered work since that time.

## EQUIPMENT.

For the work of the first two years of the medical course the entire scientific equipment of the University is available. The University already possessed, when the Medical School was established, well-equipped laboratories for chemistry, pharmacy, bacteriology and histology. In physiology and anatomy laboratories were provided in Medical Hall, and the equipment increased. The greater part of the work of the first two years is of a purely scientific character, and most of the student's time is spent in laboratories. Most of the instruction is given by men who devote themselves entirely to teaching and are not interested in any other occupation.

Chemistry is given in the Chemistry Building, which is a well-ventilated, new and commodious building, and offers apparatus and facilities for work in the regular courses. Facilities for graduate work are also provided. The laboratories for pharmacology and toxicology are in the same building. Laboratories for bacteriology, histology, embryology and pathology are in Snow Hall. The laboratories of physiology occupy the main floor of Medical Hall, and laboratories for gross anatomy and the Dean's office are on the lower floor of Medical Hall.

## REQUIREMENTS FOR ADMISSION.

The requirements for entrance to the Medical School include two years of approved college work, equivalent to the first two years' work leading to the bachelor's degree in this University. About one-third of the medical schools of the United States have announced similar entrance requirements in the past four years.

There are two methods of admission to the School of Medicine: First, by examination; second, by certificate.

## 1. BY EXAMINATION.

Students who cannot present certificates from accredited colleges will be examined in the subjects required for admission, at the times and place of examination indicated on page 114. Subjects upon which the candidate will be examined are given below.

## 2. BY CERTIFICATE.

A certificate from an accredited college granting the degree of bachelor of arts or of science, stating that the applicant has completed two years of the required work for this degree, including general chemistry, will be accepted without examination. Graduates from state normal schools and academies not granting a degree will be accepted, provided the work completed is sufficient to admit them to the Junior class of the College of Liberal Arts and Sciences of the University of Kansas. Graduates of state normal schools outside of the state of Kansas, whose credits are accepted by another state university, may be admitted under the same conditions.

A student may be conditioned in six hours' work, which amount can be completed in the following session of the Summer School, but this condition must be removed before entering upon the third year's work in the Medical School.

For the high-school units required to enter the College, see the general catalogue, page 116. Below will be found a representative course giving credit of one year in the College of Liberal Arts and Sciences in the University of Kansas.

During the high-school or the two years' college work the students should have completed the amount of work given in the list of subjects below:

Subject.	Equivalent to courses in K. U. College of Liberal Arts and Sciences.	Number hours considered necessary.	Number hours considered advisable.
German .....	Nos. 1, 2 and 3	15	20
French .....	1 and 2	10	15
Physics .....	1	5	..
Chemistry .....	1	5	10
Zoölogy .....	1	5	10

## OPTIONAL WORK.

Language.	} According to the needs and college requirements of the individual student.
History.	
Economics.	
Psychology.	

The courses here outlined summarize the subjects and the amount of work that is desirable for the prospective student of medicine to complete while in the College. As practically every student will have had physics, chemistry or German in the preparatory schools, *the schedule in the College should be modified to suit the needs of the individual.* A student who has completed a course of chemistry equivalent to course 1 is advised to take French in its place in the first term of the first year and to take chemistry in the Sophomore year. One who enters with three credits in German should take French in its place in the first and second terms of the Freshman year. A student with a course of satisfactory high-school physics should substitute courses in language or history. In the Sophomore year *chemistry is advised only if the student has taken at least ten hours of French and fifteen hours of German*, either in the preparatory course or in the College.

In order to obtain a reading knowledge of French it is necessary for the average student to complete at least ten hours' work, and fifteen hours' work is desirable. In order to obtain a reading knowledge of German about twenty hours' work is required, which necessitates the study of German for at least two years. Three years of some language (preferably Latin) should be taken in the high school as a preparation for the study of German and French.

The student is advised that the important subjects are chemistry, equivalent to course 1; zoölogy, equivalent to courses 1 and 2; physics, equivalent to courses 1 and 2, and a reading knowledge of French and German.

*As every student will have from five to fifteen hours of optional work and still comply with these requirements, the course can be adapted to the needs of the student, and advice will be gladly given to those arranging to take this work. In general, courses in language, history, economics and psychology are advised for these extra periods, in order to give the student as broad a foundation as possible preparatory to the technical studies which follow in the Medical School.*

## ADVANCED STANDING.

Advanced standing in the third and fourth years of the six-year course is granted upon examination in those subjects for which credit is desired. These examinations are conducted by

the Dean of the Scientific Department for the first two years of medical work, and by the Dean of the Clinical Department for the work belonging to the third year. Candidates desiring such advanced standing must submit in detail a schedule of the work done by them and for which they wish credit; such schedules to be signed by the instructor in each subject or by a competent officer of the institution in which work was done. Students from colleges whose work has been approved by the committee on visitation and affiliation will be admitted without examination. The necessity of a four-year registration in the Medical School and the two years' College work required for entrance must not be forgotten, however.

#### EXPENSE—SCIENTIFIC DEPARTMENT.

Laboratory fees, to cover cost of material used, will be charged by the different departments. The amount of these fees will average about as follows: Anatomy, \$3.75 per part; physiology, \$10; histology, \$2.50; embryology, \$1.50; chemistry, \$5 to \$8; physiological chemistry, \$3; bacteriology, \$2.50; pathology, \$2; making the total amount about \$60 per year for residents of Kansas, and about \$80 for nonresidents.

All laboratory fees must be paid within ten days of the beginning of the semester's work.

#### REGISTRATION AND ENROLLMENT.

The exacting nature of the work in the Medical School makes it necessary for students to enter their classes promptly. Enrollment should therefore be secured within the first week of each semester. Students may enter later only for good reasons, and the Dean of the department may limit the amount of work of such students at his discretion.

#### EXAMINATIONS.

Examinations will be held for all students during the last days of each course. Final examinations occur on the last day of the semester or half-semester.

Failures must be made good at the earliest opportunity. If not removed before the recurrence of the courses, the work must be taken in class.

Failure in more than a third of the student's work severs his connection with the University. He may be reinstated only by the action of the Dean of the department.

#### DEGREES.

Two degrees are open to students in the School of Medicine:

The degree of doctor of medicine is granted to those satisfactorily completing the work of the full four-year medical course.



The degrees of bachelor of arts and doctor of medicine are conferred upon those completing the full six-year course in the College of Liberal Arts and Sciences and the School of Medicine, as laid down in the catalogue of the College.

#### AMOUNT OF WORK.

It is not advisable to attempt to carry full work in the Medical School and to engage in outside occupations. If it is necessary for students to earn a portion of their expenses while in school, a longer time will be required to complete the course. Should students for any reason be unable to carry full work, they may, at the discretion of the Dean of the department, be withdrawn from certain courses.

#### PROGRAM OF STUDIES.

Six years' work is required of all students, including the Freshman and Sophomore work in the College. For entrance requirements, and those relating to the prescribed work of the Freshman and Sophomore work, see other pages of this catalogue.

Registration will be secured in the College for the first three years, and during the fourth year in the Medical School. Medical students must be enrolled in the Medical School during all of the last four years. At the end of the fourth year, on completion of all requirements of the College, the College will grant the degree of bachelor of arts. Upon the completion of this work the student will enroll in the courses of the third and fourth years of the Medical School, and will receive the degree of doctor of medicine when satisfactory examinations are taken.

#### FOUR-YEAR PROGRAM.

In order to comply with various state laws in regard to the issuance of the license for the practice of medicine, all students granted the medical degree must be registered as medical students for four full years. The work of the first and second years is of a general scientific character and given at Lawrence. The following are the schedules for the first two years' work:

## DAILY SCHEDULE FOR THE FIRST YEAR—FIRST SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 12:15	Anatomy. Doctor Smith.	Anatomy. Doctors Sudler and Smith.	Anatomy. Doctors Sudler and Smith.	Anatomy. Doctors Sudler and Smith.	Anatomy. Doctor Smith.
1:30 to 2:30	Organic Chemistry. Prof. Bushong.	Organic Chemistry. Laboratory. Prof. Bushong.	Organic Chemistry. Prof. Bushong.	Organic Chemistry. Laboratory. Prof. Bushong.	Organic Chemistry. Prof. Bushong.
2:30 to 3:30					
3:30 to 5:30	Histology. Prof. Baumgartner.	Histology. Prof. Baumgartner.	Histology. Prof. Baumgartner.	Histology. Prof. Baumgartner.	Histology. Prof. Baumgartner.

## DAILY SCHEDULE FOR THE FIRST YEAR—SECOND SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 12:15	Anatomy. Doctor Smith.	Anatomy. Doctors Sudler and Smith.	Anatomy. Doctor Smith.	Anatomy. Doctors Sudler and Smith.	Anatomy. Doctors Sudler and Smith.
1:30 to 3:30	Physiological Chemistry. Prof. Emerson.	Physiological Chemistry. Prof. Emerson.	Physiological Chemistry. Prof. Emerson.	Physiological Chemistry. Prof. Emerson.	Physiological Chemistry. Prof. Emerson.
3:30 to 4:30		Embryology. Prof. Scammon and Mr. Cook.		Embryology. Prof. Scammon and Mr. Cook.	History of Medicine. Doctor Morse.
4:30 to 5:30					

## DAILY SCHEDULE FOR THE SECOND YEAR—FIRST SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 12:15	*Anatomy. Prof. Scammon. Physiology. Prof. Hyde.	Anatomy. Prof. Scammon. Physiology. Prof. Hyde.	Anatomy. Prof. Scammon. Physiology. Prof. Hyde.	Anatomy. Prof. Scammon. Physiology. Prof. Hyde.	Anatomy. Prof. Scammon. Physiology. Prof. Hyde.
1:30 to 3:30	Bacteriology. Prof. Barber.	Bacteriology. Prof. Barber.	Bacteriology. Prof. Barber.	Bacteriology. Prof. Barber.	Bacteriology. Prof. Barber.
3:30 to 4:30	Pathological Physiology. Doctor Chambers. 3:30 to 5:00	Introductory Pharmacology. Lecture. Prof. Emerson.		Introductory Pharmacology. Laboratory. Prof. Emerson.	Pathological Physiology. Doctor Chambers. 3:30 to 5:00
4:30 to 5:30					

\* Anatomy for the first half of the semester and Physiology for the second half.



## DAILY SCHEDULE FOR THE SECOND YEAR—SECOND SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 11:15	Physiology. Prof. Hyde.	Physiology. Prof. Hyde.	Physiology. Prof. Hyde.	Physiology. Prof. Hyde.	Physiology. Prof. Hyde.
11:15 to 12:15	Materia Medica. Prof. Sayre.	Materia Medica. Prof. Sayre.	Materia Medica. Prof. Sayre.	Materia Medica. Prof. Sayre.	Toxicology. Prof. Bailey.
1:30 to 3:30	Pathology. Prof. Barber.	Pathology. Prof. Barber.	Pathology. Prof. Barber.	Pathology. Prof. Barber.	Pathology. Prof. Barber.
3:30 to 4:30	Hygiene. Doctor Chambers. 3:30 to 5:00	Physical Diagnosis. Doctor Naismith.		Physical Diagnosis.	Hygiene. Doctor Chambers. 3:30 to 5:00
4:30 to 5:30		Section A.		Section B.	

## REQUIRED STUDIES AND NUMBER OF HOURS.

(Arranged in accordance with the standard adopted by the Association of American Medical Colleges.)

FIRST YEAR—FIRST SEMESTER.		Di- dactic.	Labo- ratory.	Total.
<i>History:</i>				
Lectures, quizzes, and laboratory .....	...	...	...	180
<i>Anatomy:</i>				
Osteology .....	16	64	80	
Dissecting, with individual quizzes .....	...	...	260	
<i>Chemistry</i> .....	54	126	180	
Total hours .....	...	...	700	

FIRST YEAR—SECOND SEMESTER.		Di- dactic.	Labo- ratory.	Total.
<i>Embryology</i> .....	22	50	72	
<i>Anatomy</i> .....	60	300	360	
<i>Chemistry</i> .....	54	126	180	
<i>History of Medicine</i> .....	18	...	18	
Total hours .....	154	476	630	

SECOND YEAR—FIRST SEMESTER.		Di- dactic.	Labo- ratory.	Total.
<i>Anatomy (a):</i>				
Neurology .....	36	124	160	
<i>Physiology (b)</i> .....	60	100	160	
<i>Bacteriology</i> .....	54	126	180	
<i>Hygiene</i> .....	54	...	54	
<i>Introductory Pharmacology</i> .....	18	36	54	
Total hours .....	240	386	626	

SECOND YEAR—SECOND SEMESTER.		Di- dactic.	Labo- ratory.	Total.
<i>Physiology</i> .....	110	160	270	
<i>Materia Medica</i> .....	146	...	146	
<i>Toxicology</i> .....	18	...	18	
<i>Pathology</i> .....	54	126	180	
<i>Pathological Physiology</i> .....	54	...	54	
<i>Physical Diagnosis</i> .....	36	36	72	
Total hours .....	436	322	758	

## Description of Courses in Scientific Department.

### ANATOMY.

Professor SUDLER.  
Assistant Professor SCAMMON.  
Assistant Professor BAUMGARTNER.  
Doctor SMITH.

**EQUIPMENT.**—The laboratories for gross anatomy and dissecting occupy the lower floor of Medical Hall. During the last few years the equipment has been much enlarged and more material for the student has been provided, including dissections, osteological preparations, models and neurological preparations. A special effort is made to embalm the dissecting material so as to give absolutely the best result, and material assigned to students is perfectly sterile. A fee is charged each student, covering the actual cost of material consumed. Abundant material for the study of osteology is furnished. The student is expected to provide dissecting instruments and two gowns. Histology and embryology are given in laboratories in Snow Hall.

1.—**DESCRIPTIVE ANATOMY.** Seven hours, first semester, daily, 8 to 12:15. The first two weeks are occupied by a study of osteology. The vertebral column is considered from a morphological standpoint, and the various bones studied by means of drawing and modeling. The remainder of the semester is devoted to dissection of the arm and leg, and study of the various preparations and models illustrating these parts. In this course the student is put on his own resources in order to develop individuality and confidence in himself. Professor Sudler and Doctor Smith.

2.—**DESCRIPTIVE ANATOMY.** Eight hours, second semester, daily, from 8 to 12:15. During this term the abdomen, thorax and head are carefully dissected and studied. This course is simply a continuation of course 1. Professor Sudler and Doctor Smith.

3.—**THE CENTRAL NERVOUS SYSTEM AND SENSE ORGANS.** Four hours, first semester, daily, 8 to 12:15. This is a study of the embryology and the gross and microscopic anatomy of the brain, cord, and sense organs. Particular attention is paid to the fundamental plan of the nervous system and to the tracts and associated nuclei. Each student is furnished with an abundance of embryological material, a set of mounted sections from selected levels of the cord and brain stem and sufficient preserved material to make a careful study of the cord and brain. Assistant Professor Scammon.

4.—OPTIONAL WORK FOR ADVANCED STUDENTS. This work is done individually, and is arranged to suit the needs and the ability of the student. In a large measure, it will consist of a study of cross sections, special dissections, and preparation of anatomical material. Professors Sudler and Scammon.

5.—HISTOLOGY, OR MICROSCOPICAL ANATOMY. Five hours, first semester, daily, 3:30 to 5:30. Microscopical manipulation, the study of normal tissues and the methods of preparing mounted objects are required in this course. Lectures and laboratory work. Required of first-year medical students. Assistant Professors Baumgartner and Scammon.

6.—EMBRYOLOGY. Two hours, second semester, 3:30 to 5:30. General principles of embryology with special reference to the needs of students of anatomy and of medicine. Particular stress is laid upon the anatomy of the mammalian embryo and upon the structure and development of the foetal membranes and placenta. Lectures, laboratory work, and quizzes. Assistant Professor Scammon and Mr. Cook.

### BACTERIOLOGY AND PATHOLOGY.

Professor BARBER.  
Associate Professor TRIMBLE.  
Doctor CHAMBERS.  
Mr. HOOPER.

1.—BACTERIOLOGY. Five hours, first semester, 1:30 to 3:30. Lectures and laboratory. The course is intended to give the student a comprehensive view of bacteriology. The student learns the methods of preparation of culture media, separation of and obtaining pure cultures, observing the biochemical features of micro-organisms, identification of micro-organisms from their cultural and morphological characteristics. The more common pathogenic bacteria are studied with reference to their morphology, cultural and staining characteristics, pathogenicity, hygienic importance and immunity. Required of second-year medical students. Professor Barber and Mr. Hooper.

2.—GENERAL PATHOLOGY. Five hours, second semester, 1:30 to 3:30. Lectures and laboratory. In the early part of the course considerable time will be devoted to the study of pathological technique so the student may familiarize himself with the various methods of preserving, embedding, cutting and staining of tissues. The rest of the session will be devoted to the gross and microscopical study of pathological material. Required of second-year medical students. Professor Barber, Dr. Trimble, and Mr. Hooper.

3.—ADVANCED BACTERIOLOGY AND PATHOLOGY. Two to five hours. Open to graduate students, and to medical students who have had sufficient preparation. Work of an experimental nature and original research. Professor Barber.



4.—**PATHOLOGICAL PHYSIOLOGY.** Two hours, first semester, Monday and Friday, 3:30 to 5. This is a course of lectures and recitations covering the principles of diagnosis and placing a special emphasis on derangements of function. It strives to make the transition from a study of normal physiology to that of clinical physiology and pathology easy and satisfactory. The course bears the same relation to normal physiology that cellular pathology does to normal anatomy and histology, and is intended to give a rational understanding of the symptoms which are later studied at the bedside. Considerable attention is given to the various compensations, adaptations and regenerations that occur in the attempt of the individual to master disease. Required of Sophomore students. Doctor Chambers.

### CHEMISTRY.

Professor BAILEY.

Professor SAYRE.

Assistant Professor MCFARLAND.

Assistant Professor BUSHONG.

Assistant Professor EMERSON.

13.—**ORGANIC CHEMISTRY.** Lectures and recitations, five hours. The course in organic chemistry is a continuation of the course in general chemistry. The lectures will treat of the occurrence, methods of preparing and the properties of the various classes of organic compounds; as, the hydrocarbons, alcohols, ethers, aldehydes, sugars, starches, etc. First semester, Monday, Wednesday, and Friday, 1:30 to 2:30. Laboratory, Tuesday and Thursday, 1:30 to 2:30. This course may be followed by an advanced course in organic chemistry, including organic preparations. Assistant Professor Bushong and assistants.

10.—**PHYSIOLOGICAL AND MEDICAL CHEMISTRY.** Five hours, second semester, 1:30 to 3:30. This course is offered to meet the requirements of medical students. Products of physiological interest are separated from animal tissues and studied in detail. Attention is given to the study of carbohydrates, proteins, and the normal and abnormal products of animal life. The second part of the course consists of five weeks of urinalysis, embracing lectures, recitations, and laboratory work. Required of first-year students. Text: Hawk's Physiological Chemistry. Professor Sayre and Assistant Professor Emerson.

4.—**ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY.** The advanced study of any special branch of chemical physiology tending toward original work. Open to students having had general, qualitative, quantitative, organic and physiological chemistry. Either or both semesters, by appointment. Professor Sayre and Assistant Professor Emerson.

## HYGIENE.

Doctor CHAMBERS.

HYGIENE.—Two hours, second semester, Monday and Friday, 3:30 to 5. This is a course in hygiene from the view-point of the medical practitioner. Besides the usual work in hygiene, there is instruction in making vital statistics, in quarantine regulations, and in fumigation and other modes of disinfection. Committees from the class will investigate and report on water and milk supplies, the care and marketing of meats, fruits, vegetables, etc., and on various systems for heating, ventilating and cleaning.

## HISTORY OF MEDICINE.

Doctor MORSE.

1.—SIXTEEN LECTURES ON THE HISTORY OF MEDICINE. Friday, 3:30 to 4:30, during the second semester. Required of first-year medical students.

## PHARMACOLOGY, THERAPEUTICS AND TOXICOLOGY.

Professor SAYRE.

Professor HAVENHILL.

• Professor BAILEY.

Assistant Professor EMERSON.

The courses offered in the department are especially designed to meet the requirements of medical students, special emphasis being given to the properties, action and uses of the more important medicinal agents and poisons.

1.—INTRODUCTORY PHARMACOLOGY. Two hours, first semester, Tuesday, 3:30 to 4:30, Thursday, 3:30 to 5:30. This course embraces the study of weights, measures, processes used in the preparation of medicines, illustrated by exercises in pharmaceutical laboratory; prescription writing; physical properties and identification of crude drugs. Professor Havenhill.

2.—PHARMACOLOGY AND MATERIA MEDICA. Four hours, second semester, at 11:15. Classification, chemical and physical properties of drugs, therapeutical application, method of prescribing and dispensing, the action of organic and inorganic chemicals and their physiological relationships. Lectures and recitations. Required of second-year students. Must be preceded by course 1. Professor Sayre.

3.—LABORATORY WORK IN PHARMACOLOGY. This is an introductory course inaugurated in connection with the drug laboratory and Board of Health. It has become an absolute necessity to provide means for ascertaining the physiological action of certain unknown compounds that are placed upon the drug market. As this work requires facilities for pharmacological investigation, it will be utilized for the purpose of instruction

and research in connection with the Board of Health and in connection with the University Medical and Pharmacy Schools. The student electing this work will be obliged to arrange with the Dean, or the department of physiological chemistry, for the amount and kind of work he desires to perform, then appointments for such work as is desired in connection with the course in physiological chemistry will be allowed.

39.—TOXICOLOGY. One hour, second semester, at 11:15. A discussion of the sources, properties, methods of detection, *post-mortem* appearances, fatal doses and method of treatment in case of inorganic or organic poisons. Lectures and examinations. Professor Bailey.

### PHYSICAL DIAGNOSIS.

Doctor NAISMITH.

PHYSICAL DIAGNOSIS.—Two hours, second semester, 3:30 to 5:30. A course of lectures, recitations, and practice, designed to give the student a knowledge of the normal chest and abdomen and the technique of obtaining the various physical signs. The class is divided into sections for this work.

### PHYSIOLOGY.

Professor HYDE.  
Miss WALLING.

The physiological department is equipped with modern apparatus for demonstration and experimental work.

The medical laboratory is equipped with specially planned tables, that have gas, water and electrical connections. Each table is supplied with a complete outfit of apparatus, sufficient for investigation and experimentation. Two students are assigned to each table.

The research room is fitted up with the necessary tables, instruments and electrical apparatus for any kind of physiological experiments. There is a department library conveniently situated.

5.—PHYSIOLOGY. Ten hours. Daily, throughout the year, 8 to 12:15, first semester, (b); 8 to 11:15, second semester. Recitations and lectures, with demonstrations, conferences, and journal club, and laboratory experimental work. Required of second-year medical students. Professor Hyde, Doctor Johnson, and Miss Walling.

6.—PHYSIOLOGY. Five hours. Graduate course. Experimental physiology and original research. Open to students who have taken not less than a year of anatomy and physiology and have given evidence that they are prepared for it. Professor Hyde.

## II. *The Clinical Department.*

The Clinical Department was organized in the fall of 1905 by the merger of the Kansas City Medical College, founded in 1869, the Medico-Chirurgical College, founded in 1896, and the College of Physicians and Surgeons, founded in 1893. It was made possible by the acceptance on the part of the regents of the University of some tracts of land in and about Rosedale, Kan., the gift of Dr. Simeon B. Bell, of that city. The department was opened in the fall of that year, with its laboratory and lecture rooms in the building of the College of Physicians and Surgeons, Kansas City, Kan., and its dispensary in the building of the Medico-Chirurgical College. The erection of new buildings was immediately begun, and the school was moved to Rosedale in 1906.

The property is bounded by College avenue, East Park street, South Row street, West Park street; and lies one block from the Rosedale-Grand Central car line at Broad street. Visitors by car should therefore alight at Broad street, and walk one block east.

The main building is of brick and stone, 50 x 100 feet, three stories in height. It contains a teaching laboratory 30 x 100, four rooms (20 x 20) for instructors, two lecture rooms, a reading room, library, office rooms, morgue and specimen room (50 x 40), and animal rooms. The museum contains some 1000 specimens, preserved in Kaiserling and well catalogued and described. Sufficient microscopes, etc., are provided so that each student has his own equipment. The library consists of current periodicals, files of periodicals and collections of reprints and dissertations.

The hospital building is a brick structure, three stories in height, 130 x 24, with a central wing 30 x 40. It was built as a medical pavilion, and will be reserved for that service as soon as the surgical pavilion is completed. Besides the general hospital work conducted therein, a growing out-patient service is held daily. Thirty-three patients can be cared for in the present building. The new hospital will increase this number to seventy-five.

The chief dispensary or out-patient headquarters is at 902 Independence avenue, Kansas City, Mo., that is, in the well-known "north end" district of Kansas City. This building was erected especially for the University, and contains the treatment rooms for the ambulant patients and two large teaching rooms.

The School enjoys the use of other hospitals also, as follows: St. Margaret's Hospital has 300 beds and has an immense service



both in medicine and surgery. The Senior class visits this hospital two forenoons each week. Other occasional clinics are given by members of the Faculty in the private hospitals of the two cities.

### ADMISSION.

Students are admitted to the Clinical Department upon a certificate from the Scientific Department, or upon examination in the subjects already pursued by the class to which the student seeks admission.

### FEES IN THE CLINICAL DEPARTMENT.

Students who register in the Clinical Department at Rosedale, not having been previously enrolled as students of the University of Kansas, are required to pay the regular matriculation fee—for residents of Kansas, \$5; for nonresidents, \$10.

In addition each student pays \$100 for each school year, \$50 at the opening of each semester. This amount includes the incidental fees of \$25 and \$35 per annum required by law, and fees to meet, in part, the necessary hospital and clinical expenses.

Students will also be required to pay the actual cost of materials and apparatus of every kind consumed, wasted, lost or broken. A stock room is provided where students may purchase any additional material needed, or they may secure the same, if they prefer, in the open market, provided the form and grade of such articles are approved by the instructor in charge.

### REQUIREMENTS FOR GRADUATION.

To be in regular course for graduation each student must enroll for eighteen hours of work per week. Before any student may be recommended for graduation he must have had a total of 4000 hours of work in a school of medicine, of which the last 1000 hours must have been in this School.

## Description of Courses in Clinical Department.

### DERMATOLOGY.

(Skin and Venereal Diseases.)

Associate Professor WILLIAM FRICK.

Associate Professor McBRIDE.

Three semesters (or a total of 54 "hours") are given to the special study of skin lesions. The first course is given during the third year, in order that the student may have the succeeding semesters in which to digest and assimilate the information thus given in rather intensive form. The subject of syphilis is included in the instruction afforded by the department. The following are the required courses:

1.—INTRODUCTORY COURSE. One hour. Lectures and recitations. The anatomy and physiology of the skin, together with the symptomatology, pathology and clinical manifestations of the commoner skin diseases. Required of Juniors, second semester, Wednesday, at 3. Associate Professors Frick and McBride.

2.—CLINICAL DERMATOLOGY. One hour. Lectures and demonstrations of the various skin diseases, at the General Hospital, to groups of four students twice a week, Wednesday and Saturday forenoons. Both terms, Senior year. Associate Professor Frick.

### GYNECOLOGY.

Professor SUDLER.

Associate Professor GUFFEY.

Adjunct Professor LANGWORTHY.

The required work in this department is three hours of didactic instruction, two hours of clinics in the hospitals, and two hours of dispensary clinics. The student is introduced to the subject by three hours of work devoted to lectures, quizzes, and demonstrations of pathological material illustrating the subjects discussed. This is followed in the second term of the Junior year and the first term of the Senior year by clinics and hospital work. The work in gynecology the second term of the Senior year is optional. In giving instruction in this subject a special effort is made to have the student do as much of the work as possible, under proper guidance and supervision. The history of the patient, the description of the operation or treatment, and the pathology, as well as the study of the case as long as it is in the hospital or in the dispensary, is assigned to individual students in rotation. The following courses are offered:

1.—DISEASES OF THE FEMALE GENITAL TRACT. Three hours, first semester, at 11. Lectures, quizzes, and demonstrations of illustrative pathological material. Required of Juniors. Professor Sudler and Adjunct Professor Langworthy.

2.—CLINICAL GYNECOLOGY. One hour, first semester, Friday, at 3, at the Eleanor Taylor Bell Memorial Hospital. Operative clinics and clinical lectures. Required of Seniors. In this course the students act as assistants, and are taught also the technique of the modern operating room as applied to gynecology. Professor Sudler and Associate Professor Guffey.

3.—CLINICAL GYNECOLOGY. Continuation of course 2. One hour, second semester, Wednesday, at 8. Required of Juniors; optional for Seniors. Professor Sudler and Associate Professor Guffey.

4.—GYNECOLOGICAL DIAGNOSIS. Practical work in the dispensary. One hour, first semester. Students are assigned to the gynecological department of the North End Dispensary—in this

way getting practical experience in the diagnosis and treatment of the various morbid conditions. Required of Seniors. Associate Professor Guffey.

5.—GYNECOLOGICAL DIAGNOSIS. One hour, second semester. Required of Seniors. Associate Professor Guffey.

### INTERNAL MEDICINE.

Professor SLOAN.  
 Professor HOXIE.  
 Professor MURPHY.  
 Professor WOLF.  
 Clinical Professor BRUEHL.  
 Clinical Professor E. W. SCHAUFFLER.  
 Clinical Professor STERRETT.  
 Associate Professor LUTZ.  
 Associate Professor SCOTT.  
 Assistant Professor CLARK.  
 Assistant Professor HUNT.  
 Assistant Professor GOLDMAN.  
 Instructor MILLER.  
 Instructor TALBOT.  
 Instructor BOHAN.

The work of the department begins in the Sophomore year, when Professor Naismith shows the students the normal and abnormal in the development of the students in the University at Lawrence. The theoretical work of the Clinical Department is given by recitations in Osler's Practice of Medicine in the Junior year. The practical work is given in the Bell Hospital and the City Hospital during the Junior year, and in the Bell, Kansas City General and St. Margaret's hospitals during the Senior year. Two exercises for each student (in a section of not more than ten students) are given weekly to the Juniors in physical diagnosis, case history writing, and therapeutics, by Professor Hoxie. In the Senior year they visit in sections of four students the bedsides in the hospitals mentioned, and are taught by Professors Sloan (at the City Hospital), Sterrett (at Bethany), Hoxie (at the Bell), and Bohan, Talbot and Miller (at St. Margaret's). Besides this, during the Senior year the class meets weekly for a conference on the reports of members who have studied assigned cases. The clinical microscopy is taught by Associate Professor Trimble, of the Department of Clinical Pathology. Methods of life insurance examination are taught by Professor Porter and demonstrated by Professors Murphy and Bruehl. Electrotherapeutics is taught by Associate Professor Scott. Dietetics is taught by Professor Wolf during the Senior year.

2.—DISEASES OF METABOLISM. One hour, first semester, Wednesday, at 10. Required of third-year students. Recitations. Professor Murphy.

3.—DISEASES OF THE GASTRO-INTESTINAL TRACT. Two hours,

second semester, at 10. Recitations. Required of third-year students. Professor Wolf.

5.—INFECTIVE DISEASES. One hour, first semester, Friday, at 10. Recitations. Required of third-year students. Associate Professor Lutz.

7.—CLINICAL INSTRUCTION in groups, with special reference to diagnosis. Two hours, first semester. Two periods weekly. Required of third-year students. The divisions are uniform with those in other departments, and do not exceed ten students in each group. Professor Hoxie.

8.—CLINICAL INSTRUCTION. Two hours, second semester. Required of third-year students. Professor Hoxie.

12.—WARD CLASSES. Attendance restricted to fourth-year students and to four students in a group, at St. Margaret's and the City General hospitals. Credit, one hour for each semester-day. Professors Sloan, Talbot, Miller and Bohan.

13.—DIETETICS. One hour, first semester, Friday, at 9. Lectures. Required of Seniors. Professor Wolf.

16.—DIDACTIC PEDIATRICS. One hour, second semester, Tuesday, at 11. (a) The normal development of the infant and child. The contrast is drawn between the findings in the healthy infant and those in the diseased child, and also those in the healthy and diseased adult. This inculcates the essentials of diagnosis. (b) The history and logic of infant feeding. Required of Juniors. Assistant Professor Hunt.

18.—THERAPEUTICS. Lectures and textbook recitations. Two hours, first semester, at 11. Professor Hoxie.

19.—THERAPEUTICS. Continuation of 18. Two hours, second semester, Tuesday and Friday, at 11. Required of third-year students. Professor Hoxie.

20.—ELECTROTHERAPEUTICS. Lectures. One hour, second semester, Saturday, at 10. Required of fourth-year students. Associate Professor Scott.

### MEDICAL ECONOMICS.

Professor W. L. BURDICK.  
 Professor DAVID R. PORTER.  
 Dr. D. W. BASHAM.  
 Dr. CLAY COBURN.  
 Dr. F. M. DAILY.  
 Dr. O. J. FURST.  
 Dr. CHAS. S. HUFFMAN.  
 Dr. M. F. JARRETT.  
 Dr. R. A. LIGHT.  
 Dr. B. F. MORGAN.  
 Dr. R. J. MORTON.  
 Dr. J. E. OLDMAN.

This department of the Clinical School contemplates the instruction of the fourth-year students not only in the rights and



privileges of the physician, but also in matters relating to expert testimony, malpractice, ethics, and medical organization. Toxicology is taught at Lawrence. *Post-mortem* examinations, their technique and legal status are considered by the department of clinical pathology, but life insurance is taught by this department.

One hour a week during the Senior year is devoted to the work of introducing to the student the standards and relations found in the world of practice. As indicated by the above list, the most successful men from the different parts of Kansas appear before the Seniors to indicate how important are right ideals and high standards. Before graduating each candidate must take a modified form of the Hippocratic oath.

1.—MEDICAL JURISPRUDENCE. One hour, second semester, Saturday, at 10. Lectures. Required of fourth-year students. Professor Burdick.

2.—MEDICAL ECONOMICS. One-half hour, first semester, Wednesday, at 3. Lectures. Required of fourth-year students. Special lecturers.

3.—LIFE INSURANCE. One-half hour, first semester, Wednesday, at 3. Lectures and practical exercises. Required of fourth-year students. Professor Porter.

### NEUROLOGY AND PSYCHIATRY.

Professor HANAWALT.  
Professor GLASSCOCK.  
Lecturer KUHN.

The work of this department is illustrated by clinics at the Grandview Sanitarium, as well as by clinics in the hospitals to which the students are regularly attached.

1.—PSYCHIATRY. Two hours, first semester. Required of Seniors. Tuesday and Friday, at 11. Lectures. Professor Glasscock.

2.—(a) DRUG HABITS; (b) SOCIOLOGIC AND ECONOMIC ASPECTS OF PSYCHIATRY. One hour, second semester, Thursday, at 11. Elective lectures. Only those who have had some instruction in psychiatry are admitted to this course. Doctor Kuhn.

3.—ORGANIC DISEASES OF THE NERVOUS SYSTEM. Two hours, second semester, Monday and Friday, at 10. Lectures. Required of third-year students. Professor Hanawalt.

4.—THE NEUROSES. One hour, second semester, Saturday, at 11. Lectures. Required of fourth-year students. Professor Glasscock.

5.—NEUROLOGICAL CLINICS. Occasional clinics are shown by Professor Glasscock at the Grandview Sanitarium. The regular

demonstration of the neurological material lying in St. Margaret's Hospital is given by Assistant Professor Skoog to the sections in internal medicine once a week. Credit, one-half hour.

### OBSTETRICS.

Professor GUFFEY.  
Clinical Instructor NASON.

This department is equipped with models, drawings and manikins sufficient to illustrate fully its instruction. Seven units of work are required, distributed over lectures and demonstrations; and the conduct of six births.

After the preliminary work of the first term of the Junior year, students are shown cases in the lying-in ward of the Kansas City General, Bell and Bethany hospitals. Each student must attend and report six cases aside from those demonstrated by his instructors. For this work the student goes with his instructor to the home of the patient and carries out the delivery under the same conditions as obtain in actual practice. He is made responsible for at least two cases in hospital service. The report of each case must be very complete and accurate. In so vital a matter as the conduct of births, the University of Kansas believes that accuracy and success can be obtained only by rigidity and fullness of requirement in the work of each student.

1.—PHYSIOLOGICAL OBSTETRICS. Three hours, first semester, Tuesday, Wednesday, and Friday, at 4. This course embraces the physiology and management of pregnancy, labor, the puerperium, and of the new-born. Required of third-year students. Professor Guffey.

2.—PATHOLOGICAL OBSTETRICS. Two hours, second semester, Monday and Thursday, at 11. This course embraces the pathology of pregnancy, labor, the puerperium, and of the new-born, also the treatment of the abnormal conditions. Required of third-year students. Professor Guffey.

4.—MANIKIN DEMONSTRATIONS. One hour, both semesters, Saturday, at 8. This includes demonstrations by the instructor with the manikin and foetus, and actual work on the same by the students under his guidance. Among the subjects taken up are the following: Presentation and position, mechanism of labor, technique of delivery, breech presentation, version and extraction, induction of premature labor, forceps, and perineal repair. Required of fourth-year students. In sections of ten. Professor Guffey and Instructor Nason.

5.—CLINICAL OBSTETRICS. One hour, both semesters. This course brings the student face to face with actual conditions met with from time to time in dispensary and hospital work. With

the patient before him, the student is questioned regarding diagnosis, treatment and management, and where feasible he does the actual work. This course combines operative and bedside instruction. It includes reports and discussion of all abnormal conditions met with in the out-patient department. Elective, by appointment. Professor Guffey and Instructor Nason.

6.—OUT-PATIENT DEPARTMENT. The management of six births, together with a detailed report of each, is required of every student before graduation. Professor Guffey.

### OPHTHALMOLOGY.

Professor McALESTER.  
Clinical Professor LIDIKAY.  
Clinical Professor BELLOWES.  
Assistant Professor LOOK.

1.—PHYSIOLOGICAL OPTICS. Instruction is given second-year students in physiological optics; vision tests, color tests, the taking of the field of vision, etc. Optical boxes, artificial eyes, ophthalmoscopes and suitable apparatus are provided for all physiological work and study. The course consists of laboratory work and demonstrations under the professor of physiology in the regular course in physiology.

2.—LECTURES, DEMONSTRATIONS AND CLINICAL LECTURES. Two hours, second semester. Required of Junior students. The course covers the methods of examining the patient, functional testing, diseases and injuries, medical and surgical ophthalmology, and the relation of the eye to general diseases. Professor McAlester.

3.—PRACTICAL WORK. Daily clinics are given in the North End Dispensary, St. Margaret's Hospital, Bell Hospital and the City Hospital. The students are divided into small sections and serve in the Dispensary. Each individual has the opportunity of closely inspecting the patients suffering from external diseases of the eye, of making the commoner applications utilized in the treatment, of assisting in the operating room, of studying refractive errors, functional testing, etc. One hour, both semesters. Required of Seniors. Professor McAlester, Assistant Professor Look, and Clinical Professors Bellows and Lidikay.

### CLINICAL PATHOLOGY.

Professor BARBER.  
Associate Professor TRIMBLE.  
Associate Professor HERTZLER.  
Assistant Professor SKOOG.

The course in pathology extends through the Junior and Senior years. The work will consist of four laboratory periods each week during both terms. During the first semester there will be

given a course in hematology, two periods each week, consisting of recitations and laboratory work on the blood, hematological technique, changes in the blood incident to various diseases, diseases of the blood and blood parasites. In the second semester, Junior year, will be given special pathology two periods each week, which will consist of recitations and laboratory work in special pathological histology. During this semester will also be given a course in clinical microscopy, two periods each week, consisting of work in urine and gastric analysis, examinations of feces, discharges, exudates and transudates, etc.

The first semester Senior work, two periods each week, will consist of a laboratory course in medical pathology and *post-mortem* pathology. Each student will be required to report *in extenso* at least two autopsies which he has seen or has performed. In the second semester this work will become more strictly gross *post-mortem* pathology. Second semester work will consist of a course in surgical pathology, two laboratory periods each week.

1.—HEMATOLOGY. First semester, three hours, Tuesday and Wednesday, 1 to 4. Required of Juniors. Associate Professor Trimble.

2.—SPECIAL PATHOLOGY. Second semester, three hours, Monday and Wednesday, 1 to 4. Required of Juniors. Associate Professor Trimble.

3.—CLINICAL MICROSCOPY. Second semester, three hours, Tuesday and Thursday, 1 to 4. Required of Juniors. Associate Professor Trimble.

4.—POST-MORTEM PATHOLOGY. First semester, three hours, Monday and Wednesday, 1 to 4. Required of Seniors. Associate Professor Trimble.

5.—SURGICAL PATHOLOGY. Second semester, two hours, Monday and Wednesday, 1 to 3. Required of Seniors. Associate Professor Hertzler.

6.—POST-MORTEM PATHOLOGY. Clinics and demonstrations. Second semester, three hours. Required of Seniors. Associate Professor Trimble.

## RHINOLARYNGOLOGY AND OTOTOLOGY.

Professor SAWTELL.  
Associate Professor FOSTER.  
Assistant Professor LOOK.  
Clinical Assistant Dr. E. P. HALL.

The work of this department is begun during the third year, in the second semester, and is continued through the first semester of the fourth year. Both the didactic and the clinical work



are given in the dispensaries and hospitals. Doctor Foster's clinical work at St. Margaret's is given to fourth-year students in the ward classes.

1.—DIDACTIC COURSE. One hour, second semester. For this course students are taught in groups at the Bell Hospital. Beginning with a review of the anatomy and physiology of the parts, a drill in the methods of examination is given, illustrated by demonstrations on patients. Required of Juniors. Professor Sawtell.

2.—CLINICAL COURSE. One hour, first semester. Here also the students are taught in groups. The subject matter of this course consists of a study of the deformities and diseases of the nose and throat with the treatment for the same. Required of Seniors. Professor Sawtell.

3.—OTOLOGY. One hour, first semester. Lectures and demonstrations. Required of Seniors. Assistant Professor Look.

### SURGERY.

Professor BINNIE.  
 Professor BLOCK.  
 Professor PERKINS.  
 Clinical Professor GRAY.  
 Clinical Professor GRIFFITH.  
 Clinical Professor HUGHES.  
 Clinical Professor FRICK.  
 Clinical Professor HAMEL.  
 Clinical Professor BLAIR.  
 Associate Professor SCHAUFFLER.  
 Associate Professor HERTZLER.  
 Assistant Professor THRAILKILL.  
 Assistant Professor ROBERTS.  
 Assistant Professor HAYDEN.  
 Assistant Professor SUTTON.  
 Doctor ROGERS.  
 Doctor POORMAN.  
 Clinical Assistant FRANCISCO.

The theory of surgical procedure is given in the Junior year. The Juniors are shown clinics in minor surgery in the North End Dispensary, and in major surgery at the Kansas City General Hospital. The Seniors visit St. Margaret's Hospital in sections of four daily for four weeks. They have one forenoon of amphitheater clinics in St. Joseph's Hospital, one forenoon of sectional clinics in Bethany Hospital, and one in the Bell Hospital. Operative surgery is taught in the laboratory on the cadaver and animals. The amount of surgery presented the student is so abundant that the students can hardly fail to be well grounded in that art.

1.—REGIONAL SURGERY. Lectures. Four hours, first semester, Monday, Tuesday, Wednesday, and Thursday, at 9. Required of third-year students. Professor Binnie, with Associate Professor Schauffler and Doctor Hayden.

2.—GENITO-URINARY SURGERY. Lectures. One hour, both semesters, Friday, at 9. Required of third-year students. Professor Block.

3.—CLINICAL SURGERY. One hour, both semesters. Required of third-year students. Wednesday, at 9, at the Bell Hospital. Associate Professor Hertzler.

4.—CLINICAL SURGERY. One hour, both semesters. Required of third-year students. Monday, at 3, or Thursday, at 1, at the Rosedale Dispensary. Assistant Professor Sutton.

5.—ABDOMINAL SURGERY. One hour, second semester, Monday, at 9. Required of third-year students. Professor Binnie.

6.—ORTHOPEDIC SURGERY. Lectures and demonstrations. One hour, Thursday, at 9. Required of third-year students. Associate Professor Schauffler and Instructor Francisco.

7.—SURGICAL DIAGNOSIS. Lectures and demonstrations. One hour, both semesters. Required of fourth-year students. Friday, at 8. Professor Perkins.

8.—CLINICAL SURGERY. Sectional clinics at St. Joseph's, Bethany, St. Mary's and Bell hospitals. Both semesters; credit, one hour for each semester-day. Professors Binnie, Griffith, Hughes, Frick, Robinson, and Schauffler.

9.—WARD CLASSES at St. Margaret's, Kansas City General, Bethany, and the Eleanor Taylor Bell Memorial hospitals. Credit, one hour for each day. One hour each semester required of fourth-year students. Professors Gray, Perkins, Hughes, and Binnie.

10.—OPERATIVE TECHNIQUE. Laboratory. One hour, both semesters, Tuesday and Wednesday afternoons. Associate Professor Hertzler.

11.—RECTAL SURGERY. Lectures and demonstrations. One hour, first semester, Friday, at 9. Required of fourth-year students. Assistant Professor Roberts.

### III. *Training School for Nurses.*

#### FACULTY.

FRANK STRONG, PH. D., President.

GEORGE HOWARD HOXIE, A. M., M. D., Acting Dean of the Clinical Department of the School of Medicine, and Lecturer on Medicine.

MINERVA WILSON, R. N., Principal, and Lecturer on Nursing.

A. W. MCALESTER, A. B., M. D., Lecturer on Ophthalmology.

WILLIAM KIRK TRIMBLE, M. D., Lecturer on Pathology.

OSCAR M. LONGENECKER, M. D., Lecturer on Materia Medica.

WALTER S. SUTTON, A. B., M. D., Lecturer on Surgery.

J. D. BIGGER, A. B., Instructor in Medicine and Obstetrics.

G. E. KNAPPENBERGER, Instructor in Anatomy and Physiology.

This school was established in July, 1906, coincident with the establishment of the Eleanor Taylor Bell Memorial Hospital. It therefore is a subdepartment of the School of Medicine of the University of Kansas, and as such is subject to the general oversight of the Dean of the Clinical Department.

#### EQUIPMENT.

The present hospital building contains thirty-four beds. The hospital is provided both with an operating room for surgical work and with a hydrotherapeutic department for medical work. It therefore shows a greater variety of work than does the ordinary hospital of its size. Moreover, since it is a teaching hospital, the character of the work shown is much more instructive than that shown ordinarily in a private hospital.

The nurses live in a home five minutes' walk from the hospital, and therefore have an opportunity for study and rest away from the hospital atmosphere and cares.

Furthermore, the close proximity of the laboratory, library, and other equipment of the School of Medicine affords to the pupil nurses a great advantage in the way of medical information and scientific advancement.

#### ADMISSION.

Women of good character between the ages of twenty and thirty are eligible for admission. Those with a high-school education are given preference. Those who are accepted are accepted with the understanding that they must spend a probationary period of three months in the school, during which time they will receive board, laundry and lodging, but no other compensation, and that they agree to remain in the school, unless dismissed, the full term of three years.

The didactic instruction begins October 1 and ends June 1 of each year, but students are admitted at any time when there is a vacancy.

Any young woman who wishes to enter the school must make formal application (on blanks provided for that purpose) to the Faculty of the Training School. With this application should be sent letters showing what educational advantages she has enjoyed, testifying to her good moral character, and to her good health. These letters should preferably be from her instructor, her pastor and her medical attendant.

### ADVANCED STANDING.

Candidates for advanced standing must satisfy the requirements for admission and also show that they have had the work already done by the class to which they wish admission. There will be required of them, as of beginners, a probationary period, and they will be required to pass an examination on the work for which they seek credit.

### COURSE OF STUDY.

The course is for three years of at least forty-eight weeks each. (It is usual to grant the members of the first- and second-year classes a vacation of three weeks each year, and of the third-year class four weeks.)

The instruction consists of two parts—the practical and the theoretical. The practical work consists of sixty hours' work each week. The theoretical instruction requires four hours of lectures or recitations each week, together with the necessary laboratory work in dietetics and urinary analysis. This theoretical instruction includes the necessary work in anatomy, physiology, hygiene, medicine, pediatrics, obstetrics, etc.

### PROMOTION.

Students are advanced from one class to another upon the obtaining of satisfactory grades in their practical work and upon their passing satisfactory examinations in their theoretical work. Reports on the practical work are made monthly and those on the theoretical work semiannually.

### GRADUATION.

At the close of a successful course of three years the students are granted a diploma under the seal of the University of Kansas. Before, however, they receive such a diploma, they must make up lost time and demerits charged against them during the course.



## EXPENSES.

Each nurse must furnish her own uniform, books and instruments.\* To cover such professional expenses each member of the Junior class is allowed \$5 a month, of the middle class \$8 a month, and of the Senior class, \$10 a month. From this compensation is deducted, of course, the cost of material unnecessarily broken or lost. Since the board, lodging and necessary laundry work are furnished free, the pupil nurse secures her training at little or no expenditure of money.

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\* These instruments consist of 1 hypodermic syringe (all metal), 1 bandage scissors, 1 small scissors, 1 grooved director, 1 clinical thermometer, 1 probe, 1 thumb forceps.

## VIII. *The Summer Session.*

### THE FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM HERBERT CARRUTH, PH. D., Vice President.

ARTHUR TAPPAN WALKER, A. B., PH. D., Director and Professor of Latin Language and Literature.

#### *Instructors from other Institutions.*

THADDEUS LINCOLN BOLTON, PH. D., Director of the Arizona State Normal Training School at Tempe.

IRA D. CARDIFF, PH. D., Professor of Botany, Washburn College.

FRANK BURNETT DAINS, PH. D., Professor of Chemistry, Washburn College.

PETER HENRY PEARSON, L. H. D., Vice President and Professor of English Language and Literature, Bethany College.

RALPH RAY PRICE, A. M., Professor of History and Civics, Kansas State Agricultural College.

ALEXANDER H. RICE, PH. D., Professor of Latin, Boston University.

THEODORE WALTER TODD, A. M., Professor of German, Washburn College.

EMIL CARL WILM, PH. D., Professor of Philosophy and Pedagogy, Washburn College.

#### *Instructors from the University of Kansas.*

JAMES WOODS GREEN, A. M., Dean of the School of Law, and Professor of Law.

FRANK WILSON BLACKMAR, PH. D., Dean of the Graduate School, and Professor of Sociology and Economics.

CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.

CARL ADOLPH PREYER, MUS. D., Professor of Piano, Counterpoint, Canon, and Fugue.

EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.

WILLIAM CHASE STEVENS, M. S., Professor of Botany.

ARVIN SOLOMON OLIN, A. M., Professor of Education.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

WILLIAM LIVESEY BURDICK, PH. D., Professor of Law.

CHARLES EDWARD HUBACH, Professor of Voice.

JAMES NAISMITH, M. D., Professor of Physical Education.

SAMUEL JOHN HUNTER, A. M., Professor of Entomology.

- CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.  
CARL LOTUS BECKER, PH. D., Professor of European History.  
L. D. HAVENHILL, PH. M., Professor of Pharmacy.  
FREDERICK EDWARD KESTER, PH. D., Professor of Physics.  
CHARLES HUGHES JOHNSTON, PH. D., Professor of Education and  
Dean of the School of Education.  
EDNA D. DAY, PH. D., Professor of Home Economics.  
ELMER FRANKLIN ENGEL, A. M., Associate Professor of German.  
HAMILTON PERKINS CADY, PH. D., Associate Professor of Chem-  
istry.  
HENRY WILBUR HUMBLE, LL. B., Associate Professor of Law.  
ARTHUR JEROME BOYNTON, A. M., Associate Professor of Soci-  
ology and Economics.  
WILLIAM KIRK TRIMBLE, M. D., Associate Professor of Clinical  
Pathology.  
CHARLES H. ASHTON, A. B., PH. D., Associate Professor of Mathe-  
matics.  
FRANK EMERSON WARD, Superintendent of Fowler Shops and  
Shop Instruction.  
CHARLES COCHRAN, Assistant Professor of Mechanical Drawing.  
CLARENCE CORY CRAWFORD, PH. D., Assistant Professor of Euro-  
pean History.  
EARL WALTER MURRAY, A. B., Assistant Professor of Latin.  
JAMES EDWARD TODD, A. M., Assistant Professor of Geology and  
Mineralogy.  
HARRIET GREISSINGER, MUS. B., Assistant Professor of Piano.  
WILLIAM PHILIP WARD, A. B., Assistant Professor of Romance  
Languages.  
MAUDE BEATRICE COOKE, Assistant Professor of Piano.  
DAVID CAMP ROGERS, PH. D., Assistant Professor of Psychology.  
HOMER WALKER JOSSELYN, A. M., Assistant Professor of Ed-  
ucation.  
ULYSSES GRANT MITCHELL, PH. D., Assistant Professor of Math-  
ematics.  
ARTHUR DUNN PITCHER, PH. D., Assistant Professor of Mathe-  
matics.  
LULU GARDNER, A. B., Assistant Professor of Rhetoric.  
HERMAN CAMP ALLEN, A. M., Assistant Professor of Chemistry.  
VICTOR EMANUEL HELLEBERG, A. B., Assistant Professor of Soci-  
ology.  
FLORENCE HEDGER, A. B., Instructor in Chemistry.  
MAY GARDNER, A. B., Instructor in French.  
MAUD MILLER, MUS. B., Instructor in Piano.  
ANNA LOUISE SWEENEY, MUS. B., Instructor in Piano.  
LOUISE WIEDEMANN, MUS. B., Instructor in Piano.  
AMIDA STANTON, A. B., Instructor in Romance Languages.  
LARRY M. PEACE, A. M., Preparator and Demonstrator in the  
Botanical Laboratory.  
EPHRAIM EDGAR LANDRUM, Assistant Instructor in Woodworking.

## PURPOSES OF THE SUMMER SESSION.

In accordance with a general desire to increase the usefulness of the University and bring its resources nearer to the people of the state, the Summer Session was established to meet the demands of the following classes:

1. CITY AND COUNTY SUPERINTENDENTS, PRINCIPALS, AND TEACHERS, especially those having work of high-school grade, to enable them to review their work, to become familiar with the latest and best methods, and thus prepare to do their own work better. Every department of the University in which entrance credits are accepted offers one or more courses intended to assist high-school teachers of that subject. If teachers do not find such courses as they need, the University will be grateful for suggestions.

2. INSTRUCTORS IN OTHER COLLEGES who may wish the opportunity of further study, of observing the work in their subject as pursued at the University of Kansas, and of using the laboratories and library of the University.

3. STUDENTS PREPARING TO ENTER THE UNIVERSITY, to enable them to complete their preparation. No special classes are conducted for such students, but entrance credits may be secured in botany, chemistry, German, French, or zoölogy.

4. UNIVERSITY STUDENTS, whether already matriculated or coming for the first time into membership in the University, to enable them to correct irregularities in their standing or to attain standing in the University. Almost all the courses are open to such students.

5. GRADUATE STUDENTS, especially such as have already completed a portion of their work for the second degree and are prevented by regular employment from attending the University during other sessions. No course is open for graduate credit unless its description so states. Attention is invited to the provision by which such an amount of *in absentia* work is permitted that the degree of master of arts may be secured by residence in three Summer Sessions.

6. LAW STUDENTS who desire to reduce the time of their course from three years to two.

## LENGTH OF COURSES.

Most of the courses run for six weeks, from June 8 to July 19. But in a few departments three-weeks courses are given after the close of the six-weeks session. These courses run from July 20 to August 9.



## FEEES.

The summer session fee for residents of Kansas is ten dollars, for nonresidents fifteen dollars. This fee covers admission to all courses except those in music, and the medical courses which are given at Rosedale. The fee is the same whether one enters for three, six, or nine weeks.

## AMOUNT OF CREDIT.

Almost all the courses give credit toward a university degree. The normal amount of credit to be obtained in the six-weeks session is five hours; the maximum is six hours. *Under no circumstances will registration for more than six hours' credit be permitted in this session.* The amount of credit given for each course is indicated in the statement of that course. As there are no one-hour courses, a student may enroll in no more than

One five-hour course, or

One three-hour and one two-hour course, or

Two three-hour courses, or

Three two-hour courses.

The maximum amount of credit to be obtained in the three-weeks session is three hours. Students who avail themselves of both sessions may thus receive a maximum of nine hours for their nine weeks' work—just half the maximum credit allowed for the eighteen weeks of the regular sessions.

## REGISTRATION.

Work begins promptly at the scheduled hours on Thursday, June 8. Classes meet again not only on Friday, June 9, but on Saturday, June 10, though on no other Saturday of the session. Students are urged to be present on the opening day. Registration for full credit is permitted up to the night of Monday, June 12, for the benefit of those unavoidably detained; but there is a distinct loss to the student if he enters so late. After June 12 he will not be registered for full credit.

## CHARACTER OF COURSES.

The courses offered are strictly of university grade, and are selected largely with reference to the needs of secondary teachers. No review courses in subjects taught in elementary schools are offered; and the only secondary subjects are such as are common to the high school and the College, *e. g.*, elementary German. The admission requirements which are in force during the regular session are not maintained in the summer, because it is recognized that maturity may compensate for the lack of a high-school training. But the summer classes presuppose a high-school training and should not generally be taken with less preparation. In fact, most of them require more preparation

though many are intended for students who have just graduated from high schools.

#### DUPLICATION OF CREDIT.

Regular students in the University must be on their guard against the duplication of credit, especially as many of the summer courses do not exactly correspond with the regular courses. All the summer session courses in a department are numbered consecutively with Roman numerals. Following the Roman numeral is usually an Arabic numeral enclosed in parentheses. This latter numeral is the number of the course in the regular catalogue which is considered a duplicate of the summer course.

## LIST OF COURSES.

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### BOTANY.

- I (1).—ELEMENTARY BOTANY. 5 hours. Professor Stevens.  
II (2).—PLANT HISTOLOGY. 5 hours. Professor Stevens.  
III (3).—GENERAL MORPHOLOGY. 5 hours. Professor Cardiff, of Washburn.  
IV (57).—DOMESTICATED PLANTS. 2 hours. 9 to 10. Professor Stevens.  
V (54).—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. 3 to 5 hours. Professor Stevens and Professor Cardiff.

*July 20 to August 9.*

- VI.—ORGANIC EVOLUTION. 3 hours. Professor Cardiff.

### CHEMISTRY.

- I (1).—ELEMENTARY CHEMISTRY. 5 hours. Professor Dains, of Washburn.  
II (2).—INORGANIC CHEMISTRY. 4 or 5 hours. Associate Professor Cady.  
III (3).—QUALITATIVE ANALYSIS. 5 hours. Assistant Professor Allen.  
IV (54).—QUANTITATIVE ANALYSIS. 3 to 5 hours. Associate Professor Cady.  
V. (59).—ORGANIC CHEMISTRY. 3 hours. Professor Dains.  
VI (64).—PHYSICAL CHEMISTRY. 5 hours. Associate Professor Cady.  
VII.—GRADUATE RESEARCH.

*July 20 to August 9.*

- V (59).—ORGANIC CHEMISTRY, continued. 2 hours. Professor Dains.  
VIII (54 or 55).—QUANTITATIVE ANALYSIS. 1 to 3 hours. Professor Dains.

### EDUCATION.

- I (64).—EDUCATIONAL PSYCHOLOGY. 2 hours. 10:15 to 11:15. Professor Johnston.  
II (51).—HISTORY OF MODERN EDUCATION. 2 hours. 8 to 9. Professor Olin.  
III (72).—ELEMENTARY EDUCATION. 2 hours. 10:15 to 11:15. Assistant Professor Josselyn.

IV (55).—SCHOOL ECONOMY. 2 hours. 9 to 10. Professor Olin.

V (69).—HIGH SCHOOL COURSE OF STUDY. 2 hours. 11:15 to 12:15. Professor Johnston.

VI (60).—EXPERIMENTAL EDUCATION. 2 hours. 8 to 9. Assistant Professor Josselyn.

*July 20 to August 9.*

VII (52).—PRINCIPLES OF EDUCATION. 3 hours. Professor Wilm, of Washburn.

### ENGLISH.

I (86).—THE TEACHING OF ENGLISH LANGUAGE. 2 hours. 8 to 9. Professor Hopkins.

II (86).—THE TEACHING OF ENGLISH LITERATURE. 2 hours. 10:15 to 11:15. Professor Pearson, of Bethany.

III (67).—ELEMENTARY OLD AND MIDDLE ENGLISH. 2 hours. 9 to 10. Professor Hopkins.

IV (50).—ADVANCED ENGLISH COMPOSITION. 2 hours. 8 to 9. Assistant Professor Gardner.

V (87).—THE ENGLISH NOVEL. 2 hours. 11:15 to 12:15. Professor Dunlap.

VI (79).—CHAUCER. 2 hours. 10:15 to 11:15. Professor Dunlap.

VII (85).—THE ELIZABETHAN DRAMA. 2 hours. 9 to 10. Professor Pearson.

*July 20 to August 9.*

VIII (78).—SHAKSPERE. 3 hours. Professor Pearson.

### ENTOMOLOGY.

I.—FIELD ENTOMOLOGY. 3 to 6 hours. Professor Hunter.

II.—BIOLOGICAL SURVEY. 6 or 9 hours. Professor Hunter.

III.—ORCHARD AND FOREST INSECT LIFE. 6 or 9 hours. Professor Hunter.

IV.—GRADUATE RESEARCH.

### FRENCH.

Ia (1).—ELEMENTARY FRENCH. 2 hours. 8 to 9. Professor Galloo.

II (3).—MODERN FRENCH PROSE. 3 hours. 8 to 9:30. Assistant Professor Ward.

III (4).—FRENCH COMPOSITION. 2 hours. 9 to 10. Professor Galloo.

IV.—ADVANCED FRENCH.

*July 20 to August 9.*

Ib (1 or 2).—ELEMENTARY FRENCH. 3 hours. Miss Stanton.



## GEOLOGY.

I (1).—STRUCTURAL AND DYNAMIC GEOLOGY. 3 hours. 7:30 to 9. Assistant Professor Todd.

II (1).—HISTORICAL GEOLOGY. 2 hours. 9 to 10. Assistant Professor Todd.

III (50 and 51).—AREAL GEOLOGY. 2 or 5 hours. 10:15 to 12:15. Assistant Professor Todd.

## GERMAN.

I (1).—BEGINNING GERMAN. 5 hours. Associate Professor Engel.

IIa (2).—GERMAN READER. 2 hours. 10:15 to 11:15. Professor Todd, of Washburn.

III (85).—TEACHERS' COURSE IN GERMAN. 2 or 4 hours. 9 to 10. Professor Carruth.

IV.—LESSING AS DRAMATIST. 2 hours. 11:15 to 12:15. Professor Todd.

V.—GOETHE'S LIFE AND WORKS, FROM 1805 to 1832. 2 hours. 10:15 to 11:15. Professor Carruth.

*July 20 to August 9.*

IIb (2).—SCHILLER'S WILHELM TELL. 3 hours. Associate Professor Engel.

## HISTORY.

I (7).—MODERN EUROPEAN HISTORY. 2 hours. 11:15 to 12:15. Professor Becker.

II (5b).—HISTORY OF MEDIAEVAL ENGLAND. 2 hours. 8 to 9. Assistant Professor Crawford.

III (10b).—AMERICAN HISTORY, 1754 to 1854. 2 hours. 9 to 10. Professor Price, of the Agricultural College.

IV (1).—AMERICAN GOVERNMENT. 2 hours. 10:15 to 11:15. Professor Price.

V (52).—EUROPE IN THE EIGHTEENTH CENTURY. 2 hours. 10:15 to 11:15. Professor Becker.

VI (55).—THE FOUNDATIONS OF ENGLISH INSTITUTIONS. 2 hours. 9 to 10. Assistant Professor Crawford.

VII.—HISTORICAL SEMINARY. 2 to 6 hours. Professor Becker.

*July 20 to August 9.*

VIII (6b).—HISTORY OF MODERN ENGLAND. 2 or 3 hours. Assistant Professor Crawford.

## HOME ECONOMICS.

I (1).—FOOD PREPARATION. 3 hours. 7:30 to 10. Professor Day.

II (51).—DIETETICS. 3 hours. 10:15 to 12:15. Professor Day.

## LATIN.

I (4).—DE SENECTUTE AND COMPOSITION. 2 or 3 hours. 7:30 to 9. Assistant Professor Murray.

II (57).—ROMAN POLITICAL INSTITUTIONS. 2 hours. 9 to 10. Assistant Professor Murray.

III.—LIFE OF THE ANCIENT ROMANS. 2 hours. 10:15 to 11:15. Professor Rice, of Boston University.

IV.—CICERO'S LIFE, CHARACTER, AND WORK. 2 hours. 11:15 to 12:15. Professor Rice.

V.—GRADUATE RESEARCH.

*July 20 to August 9.*

VI (12).—LATIN COMPOSITION AND RAPID READING. 3 hours. Assistant Professor Murray.

## LAW.

I.—CRIMINAL LAW. At 10:15. Professor Green.

II.—TORTS. At 8. Professor Burdick.

III.—BILLS AND NOTES. At 8. Professor Green.

IV.—AGENCY. At 10:15. Professor Burdick.

V.—INSURANCE. At 8. Associate Professor Humble.

VI.—PARTNERSHIP. At 10:15. Associate Professor Humble.

## MATHEMATICS.

I (3).—PLANE TRIGONOMETRY. 2 hours. 8 to 9. Assistant Professor Pitcher.

II (4).—ANALYTIC GEOMETRY I. 2 hours. 9 to 10. Associate Professor Ashton.

III (5).—CALCULUS I. 3 hours. 7:30 to 9. Assistant Professor Mitchell.

IV.—ADVANCED ALGEBRA. 3 hours. 10:15 to 11:15. Assistant Professor Pitcher.

V. (10).—MODERN GEOMETRY. 3 hours. 7:30 to 9. Associate Professor Ashton.

VI (89).—TEACHERS' COURSE IN MATHEMATICS. 2 hours. 9 to 10. Assistant Professor Mitchell.

## MECHANICAL DRAWING AND ENGINEERING.

I (1).—FREE-HAND DRAWING. 1 hour. Assistant Professor Cochran.

II (2).—ELEMENTARY MECHANICAL DRAWING. 2 hours. Assistant Professor Cochran.

III (3).—DESCRIPTIVE GEOMETRY. 3 hours. Assistant Professor Cochran.

IV (4).—MACHINE DRAWING. 3 hours. Assistant Professor Cochran.

V (1).—MACHINE DRAWING. 3 hours. Assistant Professor Cochran.

VI (6).—ELEMENTARY MECHANICS. 2 hours. Assistant Professor Cochran.

#### MEDICINE. (*At Rosedale.*)

I.—GENERAL PATHOLOGY. 4 hours. Associate Professor Trimble.

II.—SPECIAL PATHOLOGY. 4 hours. Associate Professor Trimble.

III.—CLINICAL PATHOLOGY. 4 hours. Associate Professor Trimble.

#### MUSIC.

THEORY. Professor Preyer.

PIANO. Professor Preyer, Miss Greissing, Miss Cooke, Miss Miller, Miss Sweeney, and Miss Wiedemann.

VOICE. Professor Hubach.

#### PHARMACY.

PHARMACY AND MATERIA MEDICA. No credit. Professor Havenhill.

#### PHOTOGRAPHY.

CHEMISTRY OF PHOTOGRAPHY. 2 hours. 9 to 10. Assistant Professor Allen.

#### PHYSICAL EDUCATION.

I (53).—THE PRINCIPLES OF SPORTS AND GAMES. 2 hours. 2:30 to 3:30. Professor Naismith.

II (56).—TEACHERS' COURSE IN PHYSICAL EDUCATION. 1:30 to 2:30. Professor Naismith.

III.—SWIMMING. No credit. Professor Naismith.

#### PHYSICS.

II (6a).—GENERAL PHYSICS II. 3 hours. 10:15 to 11:45. Professor Kester.

III (5b).—GENERAL PHYSICS LABORATORY I. 2 hours. At 8 or 9. Professor Kester.

IV (6b).—GENERAL PHYSICS LABORATORY II. 2 hours. At 8 or 9. Professor Kester.

V (54).—ADVANCED PHYSICS LABORATORY. 2 to 4 hours. At 8 or 9. Professor Kester.

## PSYCHOLOGY.

I (1).—ELEMENTS OF PSYCHOLOGY. 3 hours. 10:15 to 11:45. Professor Bolton, of the Arizona State Normal School.

II (53).—COMPARATIVE PSYCHOLOGY. 2 hours. 9 to 10. Professor Bolton.

*July 20 to August 9.*

III (2).—LABORATORY PSYCHOLOGY. 3 hours.

## SHOP WORK.

I.—FORGING. Assistant Professor Ward.

II.—PATTERN MAKING. Mr. Landrum.

25.—FURNITURE MAKING. No credit. Mr. Landrum.

III.—BENCH WORK. Assistant Professor Ward.

33.—APPLICATION OF SHOP III. Assistant Professor Ward.

IV.—LATHE WORK. Assistant Professor Ward.

V.—LATHE AND MACHINE TOOL WORK. Assistant Professor Ward.

VI.—HEAVY LATHE WORK, PLANER AND MILLING-MACHINE WORK. Assistant Professor Ward.

*July 20 to August 9.*

All courses except II and 25 offered in the three-weeks session.

## SOCIOLOGY AND ECONOMICS.

I (50).—ELEMENTS OF SOCIOLOGY. 2 hours. 10:15 to 11:15. Assistant Professor Helleberg.

II (55).—PSYCHOLOGICAL SOCIOLOGY. 2 hours. 11:15 to 12:15. Assistant Professor Helleberg.

III (1).—ELEMENTS OF ECONOMICS. 2 hours. 8 to 9. Professor Blackmar.

IV (3).—ECONOMIC HISTORY OF THE UNITED STATES. 2 hours. 9 to 10. Associate Professor Boynton.

V (60).—LABOR PROBLEMS. 2 hours. 8 to 9. Associate Professor Boynton.

VI (54).—SOCIALIZATION AND SOCIAL CONTROL. 2 hours. 9 to 10. Professor Blackmar.

VII.—SEMINAR.

*July 20 to August 9.*

VIII.—CONTEMPORARY SOCIETY IN THE UNITED STATES. 3 hours. Assistant Professor Helleberg.

## SPANISH.

Ia (1).—ELEMENTARY SPANISH. 2 hours. 10:15 to 11:15. Assistant Professor Ward.



*July 20 to August 9.*

Ib (1).—ELEMENTARY SPANISH. 3 hours. Miss Gardner.

ZOOLOGY.

I (1).—ELEMENTARY ZOÖLOGY. 5 hours. Professor McClung.

II.—CYTOLOGY OR FIELD WORK. 5 to 9 hours. Professor McClung.

## IX. *The School of Education.*

### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM HERBERT CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.

CHARLES HUGHES JOHNSTON, PH. D., Dean, and Professor of Education.

EDGAR HENRY SUMMERFIELD BAILEY, PH. D., Professor of Chemistry and Metallurgy.

CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.

EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.

FRANK HEYWOOD HODDER, PH. M., Professor of American History and Political Science.

ERASMUS HAWORTH, PH. D., Professor of Geology, Mineralogy and Mining.

ARTHUR TAPPAN WALKER, PH. D., Professor of Latin Language and Literature.

WILLIAM CHASE STEVENS, M. S., Professor of Botany.

ARVIN SOLOMON OLIN, A. M., Professor of Education.

WILLIAM ALEXANDER GRIFFITH, Professor of Drawing and Painting.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

CHARLES SANFORD SKILTON, A. B., Professor of Music.

CHARLES EDWARD HUBACH, Professor of Voice.

IDA HENRIETTA HYDE, PH. D., Professor of Physiology.

WILLIAM HAMILTON JOHNSON, High-school Visitor, and Professor of Education.

JAMES NAISMITH, A. B., M. D., Professor of Physical Education.

SAMUEL JOHN HUNTER, A. M., Professor of Entomology.

CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.

EDNA DAY, PH. D., Professor of Home Economics.

CARL LOTUS BECKER, PH. D., Professor of European History.

FREDERICK EDWARD KESTER, PH. D., Professor of Physics.

JOHN WESLEY YOUNG, PH. D., Professor of Mathematics.

LOUIS EUGENE SISSON, A. M., Associate Professor of Rhetoric.

RAYMOND ALFRED SCHWEGLER, A. M., Associate Professor of Education.

HOMER WALKER JOSSELYN, A. M., Assistant Professor of Education.

## ORGANIZATION, EQUIPMENT AND PURPOSE.

The School of Education of the University of Kansas is in its infancy, but the brief description which follows will show that in general features its policy and form of organization is representative of a national educational movement. It has evolved as follows: In 1876 the legislature of the state of Kansas established a normal department at the University of Kansas. The work was not of university grade, and was discontinued by the University after some years. In 1893 a Department of Education, administratively and academically on the same basis with other departments, such as Latin, mathematics and zoölogy, was established, which continued until the present year as a coördinate department under the College of Liberal Arts and Sciences. The modern differentiation of fields within the general subject of education and the demand for a multiplication of courses which deal scientifically as well as practically with various and difficult types of educational problems, together with the consequent enlargement of the instructional staff, made necessary a new form of organization. As an expression of the aim, scope and scientific nature of this phase of university service to high-school teachers and school administrators, the Department of Education was erected into a School of Education by the Board of Regents in July, 1909, and a Dean of the School was appointed in April, 1910, thus taking rank with the professional schools of Medicine, Law, Engineering and Pharmacy. The purpose of the School is to furnish to prospective teachers, principals, and superintendents, and to all other persons interested in the professional aspect of education, so far as they lie within the scope of a university, adequate opportunities for specialization in the various phases of educational work. The plan of the organization represents the University's policy of assembling and correlating most effectively the numerous forces which naturally contribute more or less directly to the preparation of educational leaders.

The School of Education began its work with the present year. Its establishment bespeaks the University's policy of sanctioning in an administrative and decisive way this increasingly intimate and mutually helpful relationship which it enjoys with the teachers of the state. The fundamental purpose and the specific aim of the School of Education is to organize education in the University of Kansas on a strictly university and scientific basis by equipping its students who have chosen teach-

ing as a career with a knowledge of the principles of educational psychology, the historical evolution of educational thought and practice, and school organization, administration and method, so that they may contribute constructively toward the elevation of the teaching profession throughout the public-school system.

The courses are planned to meet the professional needs of the following classes: College and normal-school instructors in education, superintendents and principals of schools, heads of departments in normal and high schools, supervisors of special subjects, and teachers in high schools. Certain of the courses, in which education is presented primarily as an important function of society as well as of individuals, should also be of interest to all university students, whether they intend to become teachers or not.

The equipment of the School of Education is inadequate, as up to the present year only a small proportion of the limited library fund was available for educational books. The School, however, has a growing educational museum of considerable value, including ancient and modern school textbooks, former and present-day school appliances and equipments, maps and charts. One special feature of this collection is an alcove of books for the professional teacher's library, a selected list of modern pedagogical or broadly theoretical treatments of current educational problems, movements, tendencies and scientific discoveries or advancements. There are several thousand volumes in the University library classified under the title "Education." This equipment, by special fund just available, is to be greatly augmented through the acquisition of the files of leading French and German educational periodicals and classical treatises. The School of Education makes constant use of the stereopticon and numerous lantern slides, and has a rapidly growing collection of stereographs with stereoscopes for illustrating their proper use in the schools. A special room for this work, fitted up as a dark room, is reserved for such use by members of the Faculty of Education. Over a dozen weekly or monthly educational periodicals come to the library. There are complete files of Horace Mann's Reports, the Reports of the Commissioner of Education, *Education*, *The Educational Review*, *School Review*, *Elementary School Teacher*, the *Journal of Educational Psychology*, and the *Psychological Clinic*. In addition to the usual library facilities, a seminary room and an alcove in the reading room of the library are reserved for the use of the several departments within the School of Education. The policy is to acquire, as rapidly as available funds will permit, the needed furnishings for a well-equipped educational laboratory, demonstrational apparatus for educational psychology, for experimental education, and for school hygiene and medical inspection, and



to continue in a systematic way additions to the textbook library and to the educational division of the general library.

The educational museum and laboratory should soon contain collections of various kinds of typical work done in each grade of a school system, statistical charts, kindergarten exhibits, representative assortments of school textbooks of American, English, German and French schools, and other material appropriate to the purpose of best presenting to students working school conditions. The educational laboratory will likewise contain the standard demonstrational apparatus for typical educational processes, a collection of apparatus for studying psychological phases of distinctive educative processes, both physical and mental tests for the modern experimental study of school children, and instruments of reliable precision for research as well as for demonstration in connection with school hygiene. In connection with graduate work an educational laboratory with apparatus for technical research in psychology of reading, writing, memory, learning, habit formation, and for experimental study of formal discipline will be gradually developed.

The School of Education hopes to organize as soon as possible a plan to collect for present and future use printed reports, school records and pupils' work on a much larger scale. To adopt a paragraph from Thorndike, each school of education of a state university should plan to preserve, exhibit and use as laboratory material all educational documents which represent the status of educational work in the state system.

"All printed reports of city superintendents, courses of study, catalogues of colleges, high schools and normal schools, proceedings of educational associations, reports of special committees, librarians, and directors of museums, alumni catalogues, and the like, should be preserved for present or future use. School archives that record valuable objective facts in the educational life histories of individuals should be preserved in large numbers, say to include 10,000 individuals per year. Samples of the actual achievements of school pupils—their examination papers, when such are known to be honest tests, their achievement under outside tests, samples of their compositions, drawings, laboratory notebooks, and the like, should be preserved. Samples should be had from schools of many kinds; 200,000 samples annually, representing the work of 10,000 pupils, would not be too many."

If our school in this state did the work for the schools of this state, the result would be a series of effective collections, far superior in almost every case to the miscellany that now drifts into the library by custom. These collections should all be made in duplicate. One set could then be kept for local use and the other be used by all students of education in common, the student being sent to it, or that part of the collection which he needed

being sent to him. At the present time, with competition, each institution tries to make an independent collection of this sort; the files are incomplete, the material is uncatalogued, and the collection is of little use locally and of no use to students of other institutions, all of whom possess about the same miscellany. Each state institution should have a first-rate special collection and a share in a total collection of educational sources such as now exists nowhere and could not for any past decade be obtained at any price.

#### DEPARTMENT OF SCHOOL SERVICE.

The second department of school visitation is more general in character and is planned to meet a greater variety of school interests. It constitutes in effect a service bureau, maintained by the University for the benefit of the public schools of the state.

The department endeavors to do all in its power to stimulate popular interest in education; to support and advocate progressive school movements, and to disseminate among teachers, pupils and patrons the highest educational ideals of the day. To this end the division issues bulletins, publishes papers, arranges for rally meetings and conferences, and furnishes lecturers to address teachers' meetings and other educational gatherings.

The department is freely at the service of all school officers in the state, and inquiries with reference to its work when addressed to the director in charge will be cheerfully and promptly answered. Address The Department of School Service, The University of Kansas.

#### EXPERT ADVICE.

An important part of the work of the School of Education will be investigation and research in the different fields of education, and for this purpose the School desires the assistance and coöperation of all other educational agencies in the state. In return the University desires to be of service to the state and offers the services of its experts in education, and also offers their results, to such as need advice or information as to the solution of local educational problems.

#### OBSERVATION AND PRACTICE.

As will be noted in the announcement of courses, observation and practice work will supplement the class instruction in educational aims and methods. Members of the Senior class will regularly do some actual teaching and systematic observation in the Lawrence schools, and such work under the expert guidance and direction of the Faculty of the School of Education will be provided as the departmental equipment and the professional demands warrant.

OBSERVATION AND PRACTICE TEACHING FOR  
GRADUATE STUDENTS.

Arrangements have been made with the authorities of the school system of Kansas City, Kan., whereby a modification of the German Probejahr plan is made possible. Graduate students of the School of Education, and seniors whose teaching qualifications are of a high order, and who have the indorsement of the School of Education, may be offered the privilege of teaching under direction of the principal, and of studying at first hand the modern methods of school management and equipment in the Kansas City school system. The students may spend a continuous period of four or more weeks of the college year in such service when feasible, and for this work may receive such credit toward their teachers' diploma and their degree in education as consideration of the individual cases may warrant. This practice work under expert direction must be done in connection with the theoretical courses of the School of Education, the *bona fide* school system serving as a genuine educational laboratory adjunct.

## A SYSTEM OF PSYCHO-PHYSICAL EXAMINATIONS.

The modern science of education distinctly emphasizes the importance of the individual child. Complete functional development of the body and mind is one of the chief ends of education. The child is to be prepared for complete living.

The study of the functions, therefore, both of body and mind, in the individual student becomes a matter of the gravest import. To forestall permanent decrepitude, incipient defect must be discovered; and to unfold natural endowment to its largest radius, special capacity must be discovered and defined.

This study of the functions of the individual, if it is to be of maximal worth to the child and to society, must be made systematically, accurately and thoroughly. In its final form it will inevitably cover both the physical and the mental functions of every child that enters the public schools.

In the matter of the physical examinations a very creditable beginning has already been made, not only at the University of Kansas, but elsewhere, both within and without the state. For twelve years a physical examination has been made of every high-school graduate who has presented himself for admission to the University. The School of Education proposes to utilize the vast mass of material gained from these examinations in preparing for the use of the schools of the state of Kansas a system of measurements and tests which shall adequately cover the physical functions of school children. The University is already prepared, under suitable conditions, to furnish blank



forms to schools that wish to install a system of physical measurements, and will gladly extend expert aid to school boards and teachers who are interested in this matter.

The School of Education is now at work upon, and hopes in the near future to present, a system of mental measurements and tests which shall serve to furnish with some accuracy an index of the mental functions of school children. This system of tests will also be placed at the disposal of school officers throughout the state, and it is hoped that the wide practice of these two systems of examination will contribute largely to the vital efficiency of our schools.

Officers of school systems, or any school men who should care for University coöperation in establishing *medical inspection* and in recording psychical data of school children are invited to correspond with the Dean of the School of Education.

### SUMMER SESSION COURSES FOR TEACHERS.

The courses offered in the Summer Session are for the most part courses which are offered in the regular sessions, or modifications of such courses. The seven courses offered by the School of Education to Summer Session students are directly concerned with the practical problems of public-school teaching. *Most of the courses have been selected with a view to meeting the wishes of teachers, and many of them have been modified in some details for the same purpose.*

Students who desire to complete the course for graduation in the School of Education as rapidly as possible, teachers who cannot attend the School of Education during the regular session, and all those who desire to win both degrees, bachelor of arts and bachelor of science in education, may make up parts of their credits in the Summer Session. Address all inquiries for detailed information to the Director of the Summer Session.

### UNIVERSITY TEACHERS' DIPLOMA.

On recommendation of the Faculty of the School of Education the University teachers' diploma may be granted to graduates of the School of Education, to graduates of the College, and to those receiving degrees from the Graduate School on the following conditions:

1. Candidates for both the teacher's diploma and the bachelor's degree must offer 125 hours of undergraduate work, including fifteen hours in the School of Education (at least twelve in the departments of Education).

2. Candidates for the teachers' diploma shall be required to offer a teachers' course in some academic subject. The prerequisite for a teachers' course shall be not less than twenty nor more than twenty-five hours in the subject in which the



teachers' course is given or in closely allied subjects, three hours in history of education and three hours in educational psychology. All teachers' courses, not including credits for practice, shall be not less than two nor more than four hours for one semester in length, and shall be open to students of senior and graduate standing. By permission of the Dean a portion of the work described above as prerequisite may be taken at the same time with the teachers' course.

3. The record of scholarship required for the teachers' diploma must average not lower than grade II.

### TEACHERS' CERTIFICATE.

A certificate, granting the privilege of teaching in the schools of Kansas for three years, will be issued by the State Board of Education to students holding the diploma from the School of Education. The Faculty of the School of Education will certify to the State Board of Education the year of graduation and the qualification of the candidate.

At the expiration of the three years a life certificate will be issued by the State Board, provided the candidate shall have taught successfully during any two of the three years. To secure this privilege the candidate must file with the State Board an application accompanied by evidence of the amount and character of his professional service under the preliminary certificate.

### SPECIAL DIPLOMA.

Mature persons who for various reasons find themselves unable to meet the exact academic requirements for the bachelor's degree in education and the regular diploma and certificate, but who show the ability to carry on the work prescribed for certain major subjects in the School of Education, may be admitted as candidates for a special diploma in teaching or the supervision of instruction in elementary schools, or in such subjects as music, free-hand drawing, manual training, hygiene, nature study, physical education, etc. Such special courses will be arranged for them as experience may show desirable. This special diploma has no legal significance.

### REQUIREMENTS FOR ADMISSION AS A REGULAR STUDENT TO SCHOOL OF EDUCATION.

The work in the School of Education is based upon a four-year high-school course, or its equivalent, and the first two years' work in the College of Liberal Arts and Sciences of the University of Kansas, or its equivalent.

The requirements for admission as a regular student to the School of Education are the satisfactory completion of the first

two years in the College of Liberal Arts and Sciences or their equivalent, including a course in elementary psychology. Under the regulations of the College, to satisfy the first two years' requirements, the student must have completed sixty hours, chosen from the list of courses open to Freshmen and Sophomores in accordance with the following regulations:

1. At least five hours must be taken from each of six groups.
2. Not more than twenty hours may be taken in one department.
3. Rhetoric, five hours, must be taken by all Freshmen not offering it as a fourth year of entrance English.

In addition to the foregoing, in the first term of his Freshman year he must spend two hours a week in the gymnasium, in the second term three hours a week, and throughout his Sophomore year two hours a week; and in the first term of his Freshman year he must attend a weekly lecture in hygiene.

For further details as to requirements for admission to the College and for Freshman and Sophomore elections, see University catalogue.

Applicants for admission to the School of Education who are deficient in a small portion of these requirements may be admitted conditionally, at the discretion of the Dean.

Claims for advanced standing must be made by the student at matriculation. Of his fitness for advanced work he must satisfy the professors of the subjects he elects.

When the student enters the School of Education he must select the academic subject or subjects in which he desires to specialize, or announce his intention to specialize in the administrative and supervisory work in education itself. His decision should largely rest upon his predilection for a study of several subjects, or for especial proficiency and intensive application in a more limited range of studies, or for professional equipment in some phase of school administration and supervision. For general suggestions as to his choice of work he should consult those who offer the teachers' courses in the various subjects, or those in charge of departments of education proper.

### GRADUATE POLICY OF SCHOOL OF EDUCATION.

The progressive tendency in many states is to encourage teachers and school administrators to continue in some university advanced research in education. The most vital discoveries in this field must finally be made and checked up by those on the ground—teachers in active service. This work creates a demand for those who have had training in the methods of investigation and in the interpretation of the data collected.

The School of Education provides instruction suited to the needs of graduate students in educational psychology, history

and philosophy of education, educational administration, and in the principles of teaching the various academic and technical subjects. In accordance with the regulations of the Graduate School, students may pursue, as a major or minor, advanced work in any of these subjects. The general policy of the School of Education will be to encourage the awarding of the higher degrees with education as a major subject only to those persons who have already demonstrated their ability as teachers in their special subjects. This requirement may be waived at the discretion of the Faculty of the School of Education.

A close connection hence exists naturally between the School of Education and the Graduate School. A large proportion of those who enter the Graduate School expect to become teachers in colleges, normal schools, and in the best public-school systems. Indeed, the master's degree seems again about to become a teaching degree, as it was historically. The degree of Ph. D., when taken with education as a major, should of course imply not only high grade of scholarship but also a high grade of professional skill and temperamental fitness. The master's degree usually requires one year of graduate work; the doctor's degree three years. Work leading to these higher degrees, with education as a major, will be planned in such a way as to afford preparation for the responsible positions, particularly those involving administrative and supervisory duties and teaching positions in colleges and normal schools. Graduate work, undertaken with the major in some academic subject and the minor in education, is usually planned in such a way as to afford desirable equipment for the teaching of special branches.

Students wishing to register should first apply to the Dean of the Graduate School. When it is ascertained in what department the student desires to do his major work, the Dean will refer him to the head of that department, who will select the courses, after consultation with the student. The student will then submit the courses to the Dean, and if approved the applicant will be given a card permitting him to register in the office of the Registrar. Work to be counted as graduate work is specified in the catalogue, and must be designated as graduate on the enrollment card filed in the Registrar's office.

### GROUPING OF ACADEMIC SUBJECTS.

Students of the College of Liberal Arts and Sciences who desire to secure the state teachers' certificate and the degree from the School of Education and who have already chosen teaching as a profession would do well to plan for it from the beginning of their college course.

Because of the variety of work which most teachers are required to do upon beginning to teach, and because the state

certificate is a general license presupposing a rather wide acquaintance with several branches of study, at least elementary courses should be taken in not less than five subjects which are taught in the high schools.

In addition each teacher should have thorough, extended preparation in one subject and reasonable preparation in two or three subjects. Experience has shown that the following combinations are most frequently demanded: Latin, German; English, German; English, history, civics; English, Latin, history; mathematics, physics; botany, zoölogy; mathematics, physics, chemistry; physics, chemistry, botany, zoölogy, physiology, physiography.

In the larger schools Greek is sometimes given with Latin, and French or Spanish with German. One teacher is frequently required to teach all the sciences. Public speaking is desirable as a part of the preparation for teaching English, and courses in physical education add desirable qualifications for all teaching positions in the public schools.

#### DOUBLE REGISTRATION.

Students regularly registered in any of the other schools of the University may be admitted as either regular or unclassified students in the School of Education, but an application for such double registration must have approval of the deans of the two schools concerned. A student so registered will be subject to all the regulations concerning quantity and character of courses elected prevailing in both schools.

#### ACADEMIC COURSES.

All courses of a professional pedagogical character are offered in the School of Education. Academic courses, to which students of the School of Education are admitted on the same condition as regular students of the College, are offered in the College of Liberal Arts and Sciences. Certain courses in other schools of the University will also be open to students of the School of Education. To secure admission to these courses not offered in the School of Education the candidate must register in the school in which the course he desires is given and be subject to all the regulations prevailing in that school.



## COURSES IN EDUCATION.

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The courses are so arranged as to enable students to plan for their advanced work from their Junior year, with reference to three fairly distinct aspects of education, the historical, the scientific and theoretical, and the administrative. Undergraduates are advised to postpone exclusive specialization leading to the master's or the doctor's degree until their graduate study is begun. One course in history of education and one course in educational psychology are prerequisites for all other courses in the School of Education. Advanced credit from other universities or colleges, or from normal schools, will be granted as consideration of the individual cases may warrant. Such students should consult the dean before enrolling.

### HISTORICAL COURSES.

50.—HISTORY OF ANCIENT AND MEDIAEVAL EDUCATION. Three hours, first semester, at 8 and 3:30. This course is a study of educational principles and practice, systems, and educational theorists among ancient and mediæval peoples. It includes the important features of Oriental, Greek, Roman, early Christian and Saracenic education, the renaissance of learning under Charlemagne, the rise of universities, and the early phases of the Renaissance movement. Professor Olin.

51.—HISTORY OF MODERN EDUCATION. Three hours, second semester, at 8 and 3:30. This course is a sequel to course 1, but may be taken independently. It begins with an examination of the doctrines and systems developing from the educational reforms and reformers of the seventeenth century, including Bacon, Comenius, Locke, and other innovators. In the eighteenth century the decline and restatement of humanism are studied, the strengthening of realism, the influence of Rousseau, and the institutional development growing out of these changes. In the nineteenth century emphasis is placed on the educational evolution of Germany, France, England and America under such leaders as Pestalozzi, Herbart, Guizot, Arnold, Spencer, Mann, and Eliot. Professor Olin.

59.—EDUCATIONAL CLASSICS. Two hours, first semester, at 10:15. A critical and historical study of selected dialogues of Plato, and of the educational writings of Quintillian. An attempt will be made to trace the relation between the opinions of these two writers and the educational theory and practice of the age in which they lived. Professor Olin.

60.—EDUCATIONAL CLASSICS. Two hours, second semester, at 9. An intensive study in their historical setting of the educational writings of Rousseau, Pestalozzi, Herbart, and Spencer. Professor Johnston.

63.—EDUCATION IN AMERICA. Three hours, second semester, at 9. This course will include a study of the origin and development of educational ideas, institutions and systems in the colonial period, the evolution of the academy, high school, and professional school, the education of girls and women, manual and vocational instruction, and the work of leading educators and theorists, Mann, Willard, Lyon, Howe, Gallaudet, Barnard, Eliot, Harris. Professor Olin.

### SCIENTIFIC AND THEORETICAL COURSES.

64.—EDUCATIONAL PSYCHOLOGY. Three hours, both semesters, at 9 and 2:30. This course deals with the general principles of psychology which can be applied to education and teaching, developing at the same time an elementary special psychology of the fundamental processes in educational development, such as attention, interest, feeling, and motor practice, followed by a critical study of psychology as applied to distinctive educational processes. Among the subjects treated are: Formal discipline, measurement of mental traits, habit formation and habit breaking in school work, typical studies in learning, and the psychology of number, reading, and language. Professor Johnston and Assistant Professor Josselyn.

65.—GENETIC PSYCHOLOGY FOR TEACHERS. Two hours, first semester, at 11:15. The purpose of this course is to present the facts of mental development and to summarize the results of experimental investigations which suggest direct educational applications. Assistant Professor Josselyn.

71.—EDUCATIONAL PATHOLOGY. Two hours, first semester, at 11:15. The course will attempt a general study of the psychological and physical defects which are found in subnormal and backward children, and will present in some detail the laws of nerve hygiene which will most efficiently minister to the needs of the backward members of the school. Professor ———.

56.—VOCATIONAL EDUCATION. Two hours, first semester, at 9. This course includes a discussion of the history and status of industrial and vocational education in the United States and Europe. The following are some of the topics discussed: Attitude of organized labor; attitude of employers of labor; legislation; experiments by private philanthropic institutions, industrial corporations, and public schools; articulation with the present school system; results of industrial and vocational

education as set forth in school records, reports of special commissions, etc. Assistant Professor Josselyn.

53.—SOCIAL EDUCATION. Two hours, second semester, at 8. Education in its relation to society and to the elements and forces of social life is the basis for this course. The various educational agencies—school, home, community, church and state—will be discussed from the sociological viewpoint. The influence, in the past, of social conditions upon educational aims, functions, organizations, curricula and methods, as well as the present social demands which are tending to further development and changes, will be considered. Assistant Professor Josselyn.

67.—ADVANCED EDUCATIONAL PSYCHOLOGY. Three hours, second semester, at 11:15. This course is a continuation of course 64. Professor Johnston.

68.—PHILOSOPHY OF EDUCATION. Three hours, first semester, at 11:15. The purpose of this course is to study the distinguishable points of view of educational theory. The attempt will be made to interrelate industrial, biological, psychological, æsthetic, ethical and sociological ideals. The course is designed for those students whose previous preparation enables them to pursue fundamental inquiries into the meaning of current educational theory. Professor Johnston.

66.—EXPERIMENTAL EDUCATION. Two hours, second semester, at 9. The work of this course consists in examining critically the methods and results of representative investigations having direct bearing on the problems of individual and class teaching, and in affording practice in adapting approved methods to the study of current school problems. It is designed to acquaint the student with experimental methods, both psychological and statistical, and to familiarize him with typical problems such as retardation, individual differences, habit experiments in school work, use of ordinary school statistics in educational investigations, value of individual record cards to parents, teachers and principals, means of improving the gathering and keeping of school records, etc. Assistant Professor Josselyn.

70.—THE EDUCATION OF FEELING AND ATTENTION. The design of this course is to treat, both historically and constructively, the subject of the training of attention and feeling in education. A review of the attitudes of ancient and modern theorists will constitute the historical portion of the work. A consideration of typical philosophical and psychological attitudes toward the problem will follow this historical survey. The attempt will then be made to construct some workable concept of the relations of attention and the so-called elementary feelings to the complex intellectual and æsthetic states. The course will finally seek to emphasize the necessity of some recognition in educational

method and incorporation in educational theory of definite attentional and emotional training. Students without considerable preparation in philosophy, psychology and education are not advised to undertake the work. Lectures, prescribed readings, and thesis. Professor Johnston. (Omitted in 1911-'12.)

100.—SEMINAR IN EDUCATIONAL PSYCHOLOGY. Three to five hours' credit, second semester, hours by appointment. This course is planned for those students who by predilection and training in systematic psychology are qualified to conduct investigations concerned with the application of psychology to educational procedure. For 1911-'12 the work will have to do with imagery, habits and emotional processes of school children. Professor Johnston.

NOTE.—All seminary courses are open to graduate students only.

### ADMINISTRATIVE AND PRACTICAL COURSES.

72.—ELEMENTARY EDUCATION. Three hours, first semester, at 8. The elementary school and its problems are considered in the light of the historical development, characteristic tendencies, position in the educational system, organization, relation to the community, and course of study. Among the topics discussed are compulsory education and child labor; special schools for delinquents and defectives; special classes; vacation, evening, and continuation schools; and playgrounds. Assistant Professor Josselyn.

73.—SUPERVISION OF INSTRUCTION IN ELEMENTARY SCHOOLS. Two hours, first semester, at 8. The purpose of this course is to present the principles underlying the work of the elementary schools, and to discuss the teaching of the several subjects in the curriculum. Typical courses of study are examined to see what the general practice is in different cities. Among the special topics considered are departmental teaching, programs, lesson plans, and standards and tests of teaching. The special feature of the course is to utilize elementary school work to illustrate fundamental principles of education. Assistant Professor Josselyn.

61.—SECONDARY EDUCATION. Two hours, first semester, at 9. This course will be worked out under five heads, as follows: (I) Historical—including the influences of the old grammar schools in England, the development of the colonial grammar schools, the rise of American academies and high schools, their character and growth, state systems of secondary education with some important recent tendencies. (II) The function of the high school—its relation to the elementary school, to higher educational institutions, to technical schools, to the social state, etc.



(III) The course of study—including the purpose and relative value of secondary school studies, their classification into convenient groups, programs of studies and electives. (IV) Material factors—buildings and grounds; heating, lighting, and ventilation; libraries and laboratories; playgrounds, gymnasiums and all equipment pertaining to health and sanitation. (V) Organization and management—types of secondary schools, the teaching staff, daily programs, discipline and control, and other problems, with some practical suggestions for their treatment. Professor W. H. Johnson.

74.—ADMINISTRATION OF PUBLIC EDUCATION. Three hours, second semester, at 8. This course deals with the problems found in the organization and administration of the public school systems in the United States with special reference to city school systems. Among the topics discussed are: relation of national government to education; forms of educational control; the school superintendent; relation of superintendent, principal and teacher to school authorities; supervision of instruction; principals' and teachers' meetings; duties of principals and teachers; classification, grading and promotion of pupils; different methods of managing children; records of individual differences in pupils; study of normal and subnormal children, and the school in relation to parents' organizations, etc. Assistant Professor Josselyn.

55.—SCHOOL ECONOMY. Three hours, second semester, at 2:30. Conditions and principles essential to efficient school work, school hygiene, organization and authorities of the school, financial support, courses of study, government, library management. Required reading, observation work, class discussions, and lectures. Professor Olin.

57.—SCHOOL SUPERVISION. Two hours, first semester, at 9. This course is largely based on the texts of Chancellor and Pickard and the reports of the Committees of Twelve and Fifteen. Reports, class discussions, and lectures. Professor Olin.

56.—THE PRINCIPLES OF METHOD. Two hours, first semester, at 9. An intensive study, with special reference to the work of the secondary school, of the laws governing the successful presentation, assimilation and expression of the matter of the curriculum. The course is intended to be practical in nature, aims to be of special service to those who intend to teach in high schools, and will involve regular classroom observation in the Lawrence high school. Professor ———.

58.—COMPARATIVE STUDY OF EDUCATIONAL SYSTEMS. Three hours, first semester, at 9. This is a study of the organization and administration of the school systems of Germany, France

and England, including elementary, secondary and higher schools. The educational institutions of these countries and the methods of controlling and administering them will be compared with each other and with the corresponding institutions in the United States. Professor Olin.

69.—HIGH SCHOOL COURSE OF STUDY. Seminar. First semester, hours by appointment. An historical sketch of secondary school curricula, the bases upon which an American high-school course of study must rest, a comparison of sectionally typical high-school programs, the theory of the function of the course of study as a whole, an examination into the distinctive specific disciplines of representative established subjects in the course, a study of the reasons for the admission of vocational subjects, art appreciation courses, manual training, high-school hygiene, physical training, and moral education. Each member of the seminar will be expected to inform himself with more detail as to the history, status and specific educational value of the particular subject or subjects he proposes later to teach in the high school. Lectures, assigned investigations, and frequent reports. Professor Johnston.

101.—SEMINAR IN EDUCATIONAL ADMINISTRATION. Three or five hours' credit, second semester, hours by appointment. This course gives opportunity to persons properly qualified to carry on individual and independent investigation of educational systems. For 1911-'12 the phases considered will have to do with states, secondary and higher institutions and their proper correlation. Professor Olin.

### TEACHERS' COURSES IN SPECIAL SUBJECTS.

The items enumerated below are suggestive of the kind of topics with which the following teachers' courses in special branches are concerned:

1. A simple statement of the broader aspects of the distinctive field of education, indicating the philosophical and logical background in such a way as to broaden the student's comprehension of the deeper educational significance of the subject.

2. A specific adjustment of the moral, æsthetic, social and practical disciplines to be reasonably expected from a study of the subject.

3. A brief sketch of the actual history of the subject in the school curriculum.

4. The gradual change and improvement in the textbook presentations of the subject.

5. The gradual improvements in other apparatus than textbooks, adopted for use in teaching it.

6. The gradual change in the conception of its educational value.

7. The degree and nature of correlation with other subjects, particularly since the report of the Committee of Ten.

8. The growing refinement of methods for presenting the subject.

9. The grade preparation to be presupposed at present.

10. Its present status and the grounds for it (the year or years of the high school, hours and recognition in units), as seen from a comparison of typical high-school curriculums. The possible developments and the grounds for this.

11. The social, psychological and practical obstacles to its attaining its ideal educational aim.

12. The necessary, and also the more ideal, preparation called for in the teacher, academic and professional.

13. References to books and special monographs dealing with the topics incorporated in the course, and a suggested list of books desirable for reference for high-school libraries.

85.—TEACHERS' COURSE IN GERMAN. Five hours, second semester. Advanced grammar, with theory and practice of language teaching. Intended especially for those who desire to fit themselves for teaching German in high schools. Professor Carruth and Assistant Professor Corbin. (See German 59.)

Students who plan to become teachers of German in high schools and academies should consult with the head of the department before the close of the Sophomore year. Courses 1 to 13, inclusive, are open to all students of the College. Courses 50 to 58 are open to both undergraduates in the College and to graduate students. The full amount of Latin, 1, 2, 3, for entrance is required as preparation for German 1 and 2.

86.—METHODS OF TEACHING ENGLISH. (Teachers' course in English.) Three hours, first semester, Monday, Wednesday, and Friday, at 2:30. Principles of teaching English composition, English language and English literature. Lectures, reference reading, reports, conferences, with such laboratory practice as can be provided. To be preceded with five hours of English composition in addition to courses 1 and 2, and with at least one three-hour course in English literature in addition to 10, 11 and 12. Additional credit may be allowed when practice teaching can be arranged for. Professor Hopkins.

The recommended minimum should include in Junior and Senior years not less than three hours of English language, beginning with elementary Old English, the course in methods of teaching English with such practice teaching as may be provided, at least five hours of English composition besides course 86a listed below, and at least six hours of English literature. These courses, and others included in the recommended total, are to be determined according to the candidate's need, taste



and previous study, on consultation with the proper department committee. He should endeavor to increase the total number of English courses to the maximum without neglecting other essential subjects such as education, economics, philosophy, history, foreign language, and public speaking; and should if possible add to his undergraduate course in English one year of graduate study. It is especially important that undergraduate candidates for an English teachers' certificate should secure broad acquaintance with their field by electing in literature and composition courses differing in methods and in points of view. In English literature this means that the time should be divided among general historical courses, intensive courses in particular periods and authors, and courses devoted to the study of particular literary types or species. In English composition it means that attention should be paid to both the logical and the artistic forms and types of discourse. In English language, the course in elementary Old English should be followed with the history of the English language and the course in modern English grammar.

Course 86a following may accompany the course in methods of teaching English, in the same semester.

86a.—THE MECHANICS OF WRITING. One hour, first semester, Tuesday, at 11:15. A review of rules regarding manuscript arrangement, punctuation and paragraphing, and a discussion of all questions of form involved in the preparation and criticism of manuscript. Open only to candidates for a teacher's certificate in English who are also enrolled in the course in methods of teaching English. Associate Professor Sisson.

87.—TEACHERS' COURSE IN LATIN. Two or five hours, first semester, Tuesday and Thursday, at 10:15. Two hours a week of classroom work, with or without three hours of practice teaching. The classroom work consists of discussion of the best literature on the aims and methods of teaching Latin, and a critical examination of some textbooks used in secondary Latin teaching. Professor Walker. (See Latin 60.)

Those who wish to secure a special recommendation as teacher of Latin must elect at least twenty-five hours in the department of Latin beyond course 3; courses 4 and 12 must be included. Other courses especially recommended to those who intend to teach are 6, 8, 9, 11, 50, 57, 58, 59, and 60, and the course in ancient history given by the department of European history. Those who wish to do the best work in Latin will need, in addition to a greater amount of Latin, some Greek and a reading knowledge of German.

88.—TEACHERS' COURSE IN FRENCH. Five hours, second semester, daily, at 11:15. Systematic review of the grammar from the point of view of the requirements of elementary instruction.



Outlines of historical grammar. Study of methods of teaching languages, and practice in teaching. Open only to students who give evidence of fitness for the work. Professor Galloo. (See French 63.)

89.—TEACHERS' COURSE IN MATHEMATICS. Three or five hours, second semester, at 9. Designed for teachers and students preparing to become teachers of mathematics. It embraces the history, pedagogy and mutual relations of the mathematical subjects usually taught in the public schools from the beginning of the seventh grade to the end of the high-school course. This course consists of (1) history of mathematics, reading, and lectures; (2) a comparative study of the mathematical curricula of the schools of this country and of Europe; (3) discussions on the best methods of presenting the topics. Students taking the above course will receive two hours' credit. A limited number of students selected by the department of mathematics for practice teaching may receive three hours' additional credit for approximately sixty-five hours of teaching. Open to students who have completed courses 1 to 7 in mathematics. Mr. Mitchell. (See mathematics 62.)

Those qualifying as teachers of mathematics in high schools are advised to complete courses 1 to 9 (twenty hours) and follow these with work in astronomy, the history and pedagogy of mathematics, and practice teaching in the School of Education.

90.—TEACHERS' COURSE IN CHEMISTRY. Five hours, second semester. The course consists of three hours of practice work in the instruction of a laboratory and recitation section in one of the elementary courses in the department of chemistry, and two hours of conference and reports on library investigation. Professor Bailey and the instructor in charge of the elementary course.

91.—METHOD OF TEACHING HISTORY; TEACHERS' COURSE. Two hours, second semester. A course for prospective teachers of history in high schools. Professor Becker.

92.—TEACHERS' COURSE IN BOTANY. Three to five hours, second semester, at 8 or 10. Pedagogics and technique in botanical instruction. Consists of reading, lectures, and laboratory work, including the preparation of slides and other materials for use in teaching botany. Miss Charles. (See botany 59.)

93.—TEACHERS' COURSE IN ENTOMOLOGY. Three hours, second semester, 3:30 to 5:30. Laboratory course, adapted to those who expect to teach. Lectures upon life histories, insect relationships, choice of materials, and modes of presentation. Field work on habits of social insects. Illustrative cabinets, their preparation and use. Prerequisite, zoölogy I. Professor Hunter and Mr. Glenn. (See entomology 57.)

Those preparing to become teachers and investigators engaged in research work should complete the fundamental courses, 1 to 4, inclusive. The aims of each student will then largely determine the selection of advanced courses. The requirements for those expecting to teach entomology in secondary schools are courses 1 to 4, inclusive, and course 7.

80a.—TEACHERS' COURSE IN PHYSICS I. Mechanics and heat. Two hours, first semester, at 4:30. Discussions of the proper subject matter of an elementary course in physics, and of the various methods of treating such matter in demonstration, recitation and laboratory. Members of the class will give from time to time demonstrations on assigned topics in elementary physics. Prerequisites, physics 5 and 6 or their equivalents. Professor Kester.

80b.—TEACHERS' COURSE IN PHYSICS II. Sound, light and electricity. Two hours, second semester, Tuesday and Thursday, at 4:30. Continuation of course 62. Prerequisites, physics 5 and 6 or their equivalents. Professor Kester.

81.—TEACHERS' COURSE IN PHYSIOLOGY. Three or five hours, second semester, Monday, Wednesday, Friday, at 2:30. Designed for teachers and students preparing to become teachers of physiology, hygiene and sanitation. The course embraces (1) the preparation of laboratory material and apparatus, (2) a study of physiological topics pertaining to the school, home and social life of children, (3) investigation of the effect of environmental conditions upon health and development, (4) laboratory experiments and practice in teaching, (5) discussions on the best methods of presenting the topics, (6) recitations and lectures. Open to students who have completed courses 1 and 2. Professor Hyde.

82.—TEACHERS' COURSE IN PHYSICAL GEOGRAPHY METHODS. Two hours, second semester, at 10:15. The course includes a history of physical geography and physiography in public schools and methods of teaching them, laboratory work and out-door observations which can be conducted in high schools, meteorological apparatus and weather reports, and best methods of studying land forms and land sculpture with high-school students. Prerequisites, college physiography 54. Professor Haworth.

83.—TEACHERS' COURSE IN HOME ECONOMICS. Three, four, or five hours, second semester. A study of the history of the home economics movement, showing the reason for the diverse standards and aims to be found in the work in different schools. A study of the needs of different classes of schools with a discussion of the kind of work appropriate to each. Especial emphasis will be put on the high-school problem, the ground that should be covered and methods of presentation. The planning of

equipment, of courses, and of typical lessons. Three hours' credit will be allowed for the above. One or two more hours' credit will be allowed for practice teaching. Prerequisites, fifteen hours in home economics. Courses 50, 51, 70, 71 and 73 in home economics will be considered a low minimum for those wishing to teach both domestic science and domestic art in the high school. Further work is strongly recommended. Professor Day.

84.—TEACHERS' COURSE IN PUBLIC SPEAKING. Two hours, first semester, at 4:30. This course is designed to meet the needs of the secondary school teacher. The purpose of the course is to outline the common-sense, nontechnical methods of voice culture and to present a rational psychology of expression. Assistant Professor Gesell.

94.—TEACHERS' COURSE IN MUSIC. Two hours, both semesters, Monday and Thursday, at 1. Designed for teachers and students preparing to become teachers and supervisors of music in elementary, secondary and higher schools. The course consists of a systematic review of the methods of teaching music. Students who give evidence of fitness for the work will be given opportunities for practice teaching, for which additional credit of from one to two hours will be given. Professor Hubach.

95.—TEACHERS' COURSE IN DRAWING AND DESIGN. Four hours. Prerequisite, courses 54, 51 and 1 in Drawing, Professor Griffith.

96.—TEACHERS' COURSE IN PHYSICAL EDUCATION. Two hours, first semester, at 8. Laboratory practice teaching, by appointment. An analysis of gymnastic movements, showing their adaptation to the different grades; the method of combining these into drills; devising drills for special occasions and to suit varying conditions; organizing and conducting classes; and observation of methods by visitation and practice teaching with selected classes. Professor Naismith.

97.—THE PRINCIPLES OF SPORTS AND GAMES. Two hours, Tuesday and Thursday, at 9. Laboratory, hours by appointment. A study of the principles of play, the classification of games, showing the grade for which each is adapted, and an analysis of the different games, showing the principles involved and the attributes developed. The methods used in coaching and officiating, the locating, equipping and organizing of playgrounds and athletic fields, and the management of games, meets and tournaments. Professor Naismith.

98.—DEVELOPMENT OF SCHOOL CHILDREN. Two hours, second semester, at 8. A study of the normal periods of adolescence, the development of the nerve centers, tendencies to ab-

normalities, signs of incipient illness, signs of fatigue and strain, and the examination of children for hindrances to study and development. This course aims to equip the prospective teacher for preliminary diagnosis and for effective assistance in medical inspection. Professor Naismith.



## X. *The University Extension Division.*

The work of the University Extension Division is comprised under the following four departments:

- I. The Department of Correspondence-Study.
- II. The Department of Lecture-Study.
- III. The Department of General Information and Welfare.
- IV. The Department of Debating and Public Discussion.

### FACULTY.

- FRANK STRONG, PH. D., Chancellor and President.  
WILLIAM H. CARRUTH, PH. D., Vice President and Professor of Germanic Languages and Literatures.  
RICHARD REES PRICE, A. M., Director of University Extension.  
FRANK O. MARVIN, A. M., Professor of Civil Engineering.  
E. H. S. BAILEY, PH. D., Professor of Chemistry.  
ALEXANDER M. WILCOX, PH. D., Professor of Greek Language and Literature.  
LUCIUS E. SAYRE, PH. M., Professor of Pharmacy and Materia Medica.  
FRANK W. BLACKMAR, PH. D., Professor of Sociology and Economics.  
CHARLES G. DUNLAP, LITT. D., Professor of English Literature.  
OLIN TEMPLIN, A. M., Professor of Philosophy.  
EDWIN M. HOPKINS, PH. D., Professor of Rhetoric and English Language.  
FRANK H. HODDER, PH. M., Professor of American History and Political Science.  
ERASMUS HAWORTH, PH. D., Professor of Geology and Mineralogy.  
ARTHUR T. WALKER, PH. D., Professor of Latin Language and Literature.  
WILLIAM C. STEVENS, M. S., Professor of Botany.  
ARVIN S. OLIN, A. M., Professor of Education.  
EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.  
IDA H. HYDE, PH. D., Professor of Physiology.  
MARSHALL A. BARBER, A. M., Professor of Bacteriology and Pathology.  
SAMUEL J. HUNTER, A. M., Professor of Entomology.

- CLARENCE E. MCCLUNG, PH. D., Professor of Zoölogy.  
PERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.  
CARL L. BECKER, PH. D., Professor of European History.  
L. D. HAVENHILL, PH. M., Professor of Pharmaceutical Chemistry.  
MERVIN T. SUDLER, PH. D., M. D., Professor of Gynecology and Anatomy.  
FREDERICK E. KESTER, PH. D., Professor of Physics.  
GEORGE C. SHAAD, M. S., Professor of Electrical Engineering.  
CHARLES H. JOHNSTON, PH. D., Professor of Education.  
JOHN W. YOUNG, PH. D., Professor of Mathematics.  
MILES W. STERLING, A. M., Associate Professor of Greek.  
HANNAH OLIVER, A. M., Associate Professor of Latin.  
ELMER F. ENGEL, A. M., Associate Professor of German.  
SELDEN L. WHITCOMB, A. M., Associate Professor of English Literature.  
MARTIN E. RICE, M. S., Associate Professor of Physics.  
B. J. DALTON, B. C. E., Associate Professor of Civil Engineering.  
CLINTON M. YOUNG, B. S., Associate Professor of Mining Engineering.  
RAYMOND A. SCHWEGLER, A. M., Associate Professor of Education.  
WILLIAM K. TRIMBLE, M. D., Associate Professor of Clinical Pathology.  
CLARENCE A. DYKSTRA, A. B., Associate Professor of American History and Political Science.  
ARTHUR J. BOYNTON, A. M., Associate Professor of Sociology and Economics.  
CHARLES H. ASHTON, PH. D., Associate Professor of Mathematics.  
GEORGE J. HOOD, B. S., Assistant Professor of Mechanical Drawing.  
EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.  
ALBERTA L. CORBIN, PH. D., Assistant Professor of German.  
MARGARET LYNN, A. M., Assistant Professor of English Literature.  
HENRY O. KRUSE, A. M., Assistant Professor of German.  
CHARLES H. GRAY, PH. D., Assistant Professor of English Literature.  
CLARENCE C. CRAWFORD, PH. D., Assistant Professor of European History.  
EARL W. MURRAY, A. B., Assistant Professor of Latin.  
JAMES E. TODD, A. M., Assistant Professor of Geology and Mineralogy.  
PRESSLEY A. GLENN, A. M., Assistant Professor of Entomology.  
JAMES A. CAMPBELL, A. M., Assistant Professor of German.

ALFRED H. SLUSS, B. S., Assistant Professor of Mechanical Engineering.

WILLIAM S. JOHNSON, PH. D., Assistant Professor of English Literature.

ELIAS B. COWGILL, A. M., Assistant in University Extension.

HERMAN C. ALLEN, A. M., Assistant Professor of Chemistry.

HOMER W. JOSSELYN, A. M., Assistant Professor of Education.

W. H. TWENHOFEL, A. M., Assistant Professor of Geology.

WILLIAM W. DAVIS, A. M., Assistant Professor of American History.

RICHARD E. SCAMMON, PH. D., Assistant Professor of Anatomy and Zoölogy.

GERHARD A. GESELL, A. B., Assistant Professor of Public Speaking.

VICTOR E. HELLEBERG, A. B., Assistant Professor of Sociology.

FLORENCE HEDGER, A. M., Instructor in Chemistry.

ESTHER M. WILSON, A. M., Instructor in German.

R. D. LINDSEY, A. M., Instructor in Zoölogy.

ANA J. ENKE, PH. B., Instructor in Spanish.

CALVERT J. WINTER, A. B., Instructor in French.

BENJAMIN F. STELTER, A. M., Instructor in Rhetoric.

HELEN M. CLARKE, PH. D., Assistant in Correspondence Instruction.

## I. *The Department of Correspondence-Study.*

### GENERAL INFORMATION.

PURPOSE. The University of Kansas is the head of the public-school system of the state. It offers higher education to all properly qualified students who come within its walls, follow its curriculum, and conform to its regulations. For such persons there is an unbroken path of progress from the first primary grade of the common schools to the highest degree conferred by the University.

But, unfortunately, for many persons this is not an unbroken path. A very small per cent of those who enter the schools ever reach the University. And a great many of those who drop out are fully capable, so far as mental equipment goes, of mastering a college education. They are either allured away from school by the immediate prospect of what seems to be good wages, or are forced out by the necessity of earning a living.

The Correspondence-Study Department has been organized with the needs of such persons in mind. If they have both capacity and ambition, they may now hope to attain an education outside of the formal system. Correspondence study will enable each student to receive effective individual instruction from ex-

perts according to his own needs and the requirements or limitations of his occupation.

**HISTORY.** The Regents have had it as their constant aim to make the University the working arm of the state, to have such research and investigation as the developing needs of the state demand worked out by experts in the University's laboratories and libraries. While instruction of the highest grade has been provided for resident students, it has been the policy of the Regents to make the University the center of every movement which concerns the interests of the state. Now it is proposed to give every man and woman a chance to get a higher education at a minimum of expense and inconvenience.

This last step is simply a logical development of preceding steps, which have all tended toward making the University in the best possible sense a democratic institution. In 1891 University Extension was established, whereby the people of the state were given the benefit of courses of lectures by University professors, covering informational and cultural topics. In 1903 a Summer Session was opened for the admission of those who were so occupied during the school year as to be unable to enter as resident students. The establishment of the Correspondence-Study Department of the University Extension Division is the culminating step in this effort to make the University serve in every way possible the educational needs of the state.

**TEACHING BY CORRESPONDENCE.** Experience and the example of the great commercial correspondence schools have demonstrated the fact that many subjects can be taught successfully by correspondence. While some of the special advantages of residence study are lacking, this method has some compensating advantages of its own. In correspondence instruction, self-reliance, industry, initiative, perseverance and kindred qualities are peculiarly encouraged and developed. The teaching is personal and individual. Each student studies and recites the whole lesson and every part of the lesson, and stands in relation to the teacher as an individual, and not as a member of a large class.

In addition, in order to supplement correspondence instruction and to minimize so far as possible the peculiar disadvantages and shortcomings of this method of teaching, whenever the number of students pursuing the same course in one community or study-center reaches five or ten, each group will have the advantage of a visit once every two weeks by the teacher who handles their correspondence and work at the University.

### THE WORK OFFERED.

**GRADE OF WORK.**—Most of the work offered by correspondence is of the regular college or university grade. Persons who are unable to spend the full number of years of residence study re-



quired for a University degree may take as much as one-half of the required hours toward graduation through correspondence. But the person who intends to earn a degree in this way should plan well in advance and take counsel with the University authorities concerning such studies pursued in absence. A student should plan to do the latter part of the University course in residence, *i. e.*, at the University, since the studies required in the Freshman and Sophomore years are more generally available for correspondence study.

Many persons have failed to complete a high-school course. These persons sometimes discover afterwards that the equivalent of a high-school course is a prerequisite for a career upon which they wish to embark. For the benefit of such persons, and also for those who lack certain units required for entrance to the University, it is proposed to offer certain courses of high-school grade. Pupils of small high schools which do not fully prepare for the University may thus remove possible entrance conditions.

In the state of Kansas there are many adult persons engaged as farmers, artisans, or shop workers in the various trades and crafts. These persons need industrial training to give them that theoretical knowledge of principles and processes which is necessary for the advancement of the worker and the development of the industry. These persons commonly cannot meet the entrance requirements of the University, and yet are in great need of the training and teaching which can be offered by its experts and specialists. For such persons vocational courses will be prepared which will not command University credit, but will, nevertheless, give the desired training in the theory and practice of the various vocations.

The work of the Correspondence-Study Department is not designed to conflict with or compete with existing educational agencies, but rather to coöperate with them and supplement them. It is assumed that when a person can, he will be in residence at some educational institution. This instruction is designed for adult persons carrying on their own education. It is open to non-residents as well as to residents of the state of Kansas.

### THE SYSTEM.

**PROCEDURE.** The student who wishes to undertake correspondence study should first select such course or courses as he may desire to take, and send for an application blank. He should fill out the blank with all the information called for, and return it with the required fee to the office of the Extension Division.

**THE INSTRUCTION.** Upon receipt of application and fee the first lesson will be sent, with instructions for study and methods of preparation, and directions for returning lesson sheets and reports. Each lesson will be returned to the student with such

corrections, explanations and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Each assignment contains questions to test the student's methods of work as well as his understanding of the ground covered. After preparing for recitation the student writes his answers to the questions and returns them, together with any difficulties which may have arisen during study.

**BY WHOM PREPARED.** These courses are prepared by the members of the University Faculty, and each represents a definite amount of work corresponding to an equivalence of work done in residence at the University, or in the standardized schools of our educational system.

**THE UNIT COURSE.** The unit course is divided, where practicable, into forty assignments. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five full recitation hours per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks on a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able. Shorter courses are ordinarily divided into fractional fifths of the unit course of forty assignments, corresponding to three-hour, two-hour, or one-hour courses in resident work at the University. In all cases the assignment represents an average week's work and not an evening's work as at school.

**EXAMINATIONS.** Examinations are optional with the student, but are required where credits are sought. These examinations must be taken at the University, or under conditions approved by the University.

#### REGULATIONS.

1. Students may begin correspondence courses at any time during the year.

2. For admission to the Correspondence-Study Department no preliminary examination is required. The student is required to fill out an application blank giving such information as may be helpful in adapting the instruction to the personal needs of each student.

3. Students who undertake correspondence-study work for University credit must state this fact in advance and comply with all the requirements of the University.

4. Persons who seek a University degree must conform to all the requirements exacted by the college or school in which such degree is sought. A maximum of one-half the required credits

for the A. B. degree may be accumulated through correspondence.

5. Combinations of correspondence study and the residence work of the Summer Session are possible, and are recommended.

6. For the benefit of the Department it is desired that the applicant state fully the purpose he has in view in taking the work, and also in detail such educational advantages, training or experience as he may have had.

7. Correspondence students will be expected to complete a unit course within twelve months.

8. During an instructor's vacation a substitute will be provided to carry on such course or courses, if possible, or the time for completing the course will be extended.

9. No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected, the fee is returned.

10. Each correspondence course is equivalent to the corresponding residence course, and commands credit unless definite statement is made to the contrary.

11. Not more than two forty-assignment courses or their equivalent may be carried through correspondence study at one time.

#### SPECIAL ENGINEERING REGULATIONS.

1. Not more than one-fourth of the number of unit hours of credit required for graduation in any engineering department may be obtained through correspondence study.

2. Not more than seven hours of credit in sequence in courses which are interdependent may be obtained through correspondence.

3. A failure in any branch in residence may not be made up through correspondence.

#### UNIVERSITY CREDIT.

1. University credit can be granted only to students who have met the entrance requirements of the University. Upon satisfactory completion of a correspondence course designed for credit, such persons will be awarded a certificate of credit in the University. Other students' grades will be recorded merely in the files of the department and certificates issued for the same.

2. The maximum credit granted for work done by correspondence study may not exceed one-half the unit hours required for graduation.

3. At the completion of each correspondence-study course for University credit the student shall pass an examination held under the direction of the instructor giving such course, or by some one designated by the University for that purpose.



4. Work taken for credit may not be done by any student while in attendance at any institution of learning.

5. Admission credit is given for courses covering college entrance requirements which are satisfactorily completed and passed by examination.

6. University credit is given for courses of a college grade satisfactorily completed and passed by examination.

7. If the student has a record of residence work in the University, credits gained from correspondence courses are immediately transferred to that record; if not, they are held in the Correspondence-Study Department until the student secures such a record covering one year of study in residence.

8. All courses offered by the Correspondence-Study Department, whether taken for University credit or not, are on a uniform basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, a definite value, and all students who successfully complete such courses will be awarded certificates of the grade in which the work is taken.

**THE HOUR.** The term "hour," as used in the general catalogue of the University, means one hour of class work a week for one semester, or half year. The unit course is a five-hour course; that is, one in which the class meets for one hour five days in the week for half a year.

**MASTER'S DEGREE.** With the consent of the department concerned, candidates for the master's degree may count *in absentia* work done through correspondence courses given by members of the University Faculty to the extent of fifteen hours, allowing five hours' credit for each correspondence course of forty assignments.

### EXPENSES.

The fees charged for correspondence instruction will be found listed on page 399. Textbooks, apparatus, dissecting material, chemicals, etc., must be purchased by the student at the University or elsewhere. Every student who enrolls will be charged five dollars per course as a correspondence laboratory fee, covering postage, typewriting of assignments, stationary and other incidental expenses. This is in addition to the regular matriculation and incidental fees.

**THE PRICE.** Correspondence students will be expected to pay the matriculation and incidental fees listed above, the amount depending on whether or not the student is a resident of the state and also on the school in which the course he selects falls. Most of the courses now offered fall under the College of Liberal Arts and Sciences, but a few will be offered in the School of Engineering and the School of Pharmacy.



**MATRICULATION.** The matriculation fee of five dollars is payable only once and is exacted only from those who have not previously matriculated. When once paid, this fee stands to the student's credit should he ever afterwards enter the University for residence study.

**INCIDENTAL FEE.** The incidental fee covers the cost of tuition for one year from the date of registration, and must be paid each year that the student reënrolls for study. The five-dollar laboratory fee is charged for each course taken. The other fees mentioned above will be the same whether a student registers for one course or the maximum of two courses.

**AN EXAMPLE.** We will suppose that a resident of Kansas wishes to take by correspondence a course in history or in German, or in both. If he has never matriculated at the University, the fees he would have to pay are as follows:

Matriculation fee .....	\$5 00
Incidental fee .....	10 00
Laboratory fee .....	5 00 for each course.

The first of the above fees is payable only once; the others are payable yearly. From this example it will be easy for any one to compute the fees for a nonresident of Kansas and for courses in other schools, such as pharmacy and engineering.

**BOOKS AND OUTFIT.** All necessary textbooks, drawing outfits, apparatus, etc., are extra, and must be procured by the student. The student also pays postage one way.

**PAYMENTS.** The incidental and laboratory fees may be paid for in monthly payments of five or ten dollars when the student finds it necessary. In this plan the general rule of payment in advance applies. No extra charge is exacted for a course where payments are made by installments. *But in every case at least ten dollars of the required fees must accompany the application.*

**HOW TO REMIT.** Money should be sent in the form of postal or express money order, or Kansas City or Chicago draft, made payable to the University of Kansas. Mail to the Director of University Extension, Lawrence, Kan.

**THE COST ANALYZED.** No effort is made to put the fees of the Correspondence-Study Department or of the University Extension Division on a money-making basis. The effort is rather to put the fees upon the lowest operating basis. In fact, the fees for the whole University and for every department and division thereof have been fixed by legislative enactment, and are not subject to change or modification by the University authorities. The fees for the Correspondence-Study Department are therefore the same as those exacted from students in residence.

**TRAVELING LIBRARIES.** In some of the courses offered through

correspondence a collection of books of reference for collateral and supplementary reading is required, so extensive that it would be a hardship on many persons to be compelled to buy these books. To obviate this difficulty, an arrangement has been made with the State Traveling Libraries Commission at Topeka, to furnish these reference books in loan libraries of ten or twelve volumes, a separate library for each of such courses. A library covering the work of a certain course may thus be obtained and used by the student for the mere cost of transportation from Topeka and return.

## COURSES IN CORRESPONDENCE-STUDY.

### ASTRONOMY.

1.—DESCRIPTIVE ASTRONOMY. Twenty-four assignments, three hours' College credit.

### BOTANY.

1.—GENERAL MORPHOLOGY OF PLANTS. Forty assignments, five hours' College credit.

2.—GENERAL MORPHOLOGY OF CRYPTOGRAMS. Forty assignments, five hours' College credit.

3.—PLANT HISTOLOGY. Forty assignments, five hours' College credit.

### CHEMISTRY.

1.—ELEMENTARY CHEMISTRY. Forty assignments, five hours' College credit.

2.—SANITARY AND APPLIED CHEMISTRY. Forty assignments, five hours' College credit.

3.—QUANTITATIVE ANALYSIS. Forty assignments, five hours' College credit.

### EDUCATION.

1.—HISTORY OF MODERN EDUCATION. Twenty-four assignments, three hours' College or Education credit.

2.—PRINCIPLES OF EDUCATION. Twenty-four assignments, three hours' College or Education credit.

3.—ELEMENTARY EDUCATION. Twenty-four assignments, three hours' College or Education credit.

4.—ADVANCED EDUCATIONAL PSYCHOLOGY. Twenty-four assignments, three hours' College or Education credit.

5.—ADVANCED PHILOSOPHY OF EDUCATION. Twenty-four assignments, three hours' College or Education credit.

## ENGINEERING.

- 1.—HIGHWAY CONSTRUCTION. Sixteen assignments, two hours. Not for University credit.
- 2.—MECHANISM AND MACHINE DESIGN. Thirty-two assignments, four hours. Not for University credit.
- 3.—POWER-PLANT ENGINEERING. Forty assignments, five hours. Partial Engineering credit.
- 4.—ELEMENTS OF DIRECT-CURRENT ELECTRICAL ENGINEERING. Thirty-two assignments, four hours. Not for University credit.
- 5.—FREE - HAND LETTERING AND MECHANICAL DRAWING. Twenty-four assignments, three hours' Engineering credit.
- 6.—MACHINE DRAWING. Twenty-four assignments, three hours' Engineering credit.
- 7.—ELEMENTARY MECHANICS. Sixteen assignments, two hours' Engineering credit.
- 8.—MINE SURVEYING OR MINE ENGINEERING. Forty assignments, five hours. Not for credit.
- 9.—GENERAL MINING. Forty assignments, five hours. Not for credit.
- 10.—COAL MINING. Forty assignments, five hours. Not for credit.
- 11.—ORE DRESSING; CONCENTRATION OF ORES. Forty assignments, five hours. Not for credit.
- 12.—ELEMENTARY MINERALOGY. Forty assignments, five hours' College or Engineering credit.
- 13.—GENERAL GEOLOGY. Forty assignments, five hours' College or Engineering credit.
- 14.—ECONOMIC GEOLOGY. Forty assignments, five hours' College or Engineering credit.

## ENGLISH.

- 1.—RHETORIC AND ENGLISH COMPOSITION. Forty assignments, five hours' College or Engineering credit.
- 2.—ENGLISH LITERATURE. Forty assignments, five hours' College credit.
- 3.—HISTORY OF ENGLISH LITERATURE. Forty assignments, five hours' College credit.
- 4.—AMERICAN LITERATURE. Twenty-four assignments, three hours' College credit.
- 5.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Forty assignments, five hours' College credit.
- 6.—HISTORY OF THE ENGLISH DRAMA. Twenty-four assignments, three hours' College credit.

7.—ELEMENTARY OLD ENGLISH (ANGLO-SAXON). Twenty-four assignments, three hours' College credit.

8.—BROWNING. Twenty-four assignments, three hours' College credit.

### ENTOMOLOGY.

1.—INTRODUCTORY ENTOMOLOGY. Forty assignments, five hours' College credit.

2.—THE ROLE OF INSECTS IN THE SPREAD OF DISEASE. Sixteen assignments, two hours. Not for credit.

3.—APPLIED ENTOMOLOGY. Sixteen assignments, two hours' College credit.

### GERMAN.

1.—BEGINNING GERMAN. Forty assignments, five hours' College or Engineering credit.

2.—GERMAN II. Forty assignments, five hours' College credit.

3.—GERMAN III. Forty assignments, five hours' College credit.

4.—GERMAN IV. Forty assignments, five hours' College credit.

5.—THE REALISTIC AND NATURALISTIC DRAMA. Forty assignments, five hours' College or Graduate credit.

### GREEK.

1.—ELEMENTARY GREEK. Forty assignments, five hours' College credit.

2.—XENOPHON'S ANABASIS. Forty assignments, five hours' College credit.

3.—HOMER'S ILIAD. Twenty-four assignments, five hours' College credit.

### HISTORY.

1.—AMERICAN HISTORY. Forty assignments, one unit of entrance credit or five hours' College credit.

2.—ENGLISH HISTORY. Forty assignments, one unit of entrance credit or five hours' College credit.

3.—AMERICAN GOVERNMENT. Forty assignments, five hours' College credit.

4.—MODERN EUROPEAN HISTORY I. Twenty four assignments, three hours' College credit.

5.—MODERN EUROPEAN HISTORY II. Twenty-four assignments, three hours' College credit.



## LATIN.

- 1.—ELEMENTARY LATIN. Forty assignments, one unit of entrance credit.
- 2.—CÆSAR. Forty assignments, one unit of entrance credit.
- 3.—CICERO'S ORATIONS. Forty assignments, one unit of entrance credit or five hours' College credit.
- 4.—VERGIL'S ÆNEID. Forty assignments, one unit of entrance credit or five hours' College credit.
- 5.—PREPARATORY PROSE COMPOSITION. Twenty-four assignments. No credit.
- 6.—CICERO'S DE SENECTUTE, AND PROSE COMPOSITION. Twenty-four assignments, three hours' College credit.
- 7.—HORACE'S ODES. Twenty-four assignments, three hours' College credit.
- 8.—PROSE COMPOSITION. Sixteen assignments, two hours' College credit.
- 9.—THE TOPOGRAPHY OF ROME. Sixteen assignments, two hours' College credit.
- 10.—ROMAN POLITICAL INSTITUTIONS. Twenty-four assignments, three hours' College credit.
- 11.—CÆSAR'S CAMPAIGNS. Twenty-four assignments, three hours' College credit.

## MATHEMATICS.

- 1.—ELEMENTARY ALGEBRA (Part A). Forty assignments, one unit of entrance credit.
- 2.—ELEMENTARY ALGEBRA (Part B). Twenty assignments, one-half unit of entrance credit.
- 3.—PLANE GEOMETRY. Forty assignments, one unit of entrance credit.
- 4.—SOLID GEOMETRY. Twenty assignments, one-half unit of entrance credit.
- 5.—PLANE TRIGONOMETRY. Sixteen assignments, two hours' College or Engineering credit.
- 6.—UNIVERSITY ALGEBRA. Twenty-four assignments, three hours' College or Engineering credit.
- 7.—ANALYTIC GEOMETRY. Thirty-two assignments, four hours' College or Engineering credit.
- 8.—PRACTICAL MATHEMATICS FOR ARTISANS. Forty assignments, five hours. No University credit.

## MEDICINE.

- 1.—ANATOMY. Microscope slides lent, and dissecting material furnished.
- 2.—HISTOLOGY. Microscope slides lent.
- 3.—PATHOLOGY. Microscope slides lent.
- 4.—BACTERIOLOGY. Microscope slides lent, and culture tubes furnished.

## MINERALOGY AND GEOLOGY.

- 1.—ELEMENTARY MINERALOGY. Forty assignments, five hours' College or Engineering credit.
- 2.—GENERAL GEOLOGY. Forty assignments, five hours' College or Engineering credit.
- 3.—ECONOMIC GEOLOGY. Forty assignments, five hours' College or Engineering credit.

## PHARMACY.

- 1.—INTRODUCTORY PHARMACY. Twenty assignments, two and one-half hours' Pharmacy credit.
- 2.—ORGANIC MATERIA MEDICA. Twenty assignments, two and one-half hours' Pharmacy credit.
- 3.—PHARMACY PHYSIOLOGY. Twenty assignments, two and one-half hours' Pharmacy credit.
- 4.—SHORT COURSE FOR THE DEGREE PH. G. Forty assignments each in Chemistry, Materia Medica, and Pharmacy through correspondence, covering two calendar years; and two summer sessions of six weeks each in the laboratories at Lawrence. This course leads to the degree of Graduate in Pharmacy.

## PHILOSOPHY.

- 1.—ELEMENTARY PSYCHOLOGY. Twenty four assignments, three hours' College credit.
- 2.—LABORATORY PSYCHOLOGY. Sixteen assignments, two hours' College credit.
- 3.—INTRODUCTION TO PHILOSOPHY. Sixteen assignments, two hours' College credit.
- 4.—HISTORY OF ANCIENT PHILOSOPHY. Twenty-four assignments, three hours' College credit.
- 5.—HISTORY OF MEDIAEVAL AND MODERN PHILOSOPHY. Twenty-four assignments, three hours' College credit.
- 6.—ETHICS. Forty assignments, five hours' College credit.

## PHYSICS.

- 1.—ELEMENTARY PHYSICS. Twenty-four assignments, three hours' College credit.
- 2.—MECHANICS AND HEAT. Thirty-two assignments, four hours' College or Engineering credit.
- 3.—SOUND, LIGHT, ELECTRICITY AND MAGNETISM. Thirty-two assignments, four hours' College or Engineering credit.
- 4.—MECHANICS AND HEAT. Twenty-four assignments. Three hours' College credit.
- 5.—SOUND, LIGHT, ELECTRICITY AND MAGNETISM. Twenty-four assignments, three hours' College credit.
- 6.—THEORY OF ELECTRICITY AND MAGNETISM. Twenty-four assignments, three hours' College credit.

## PHYSIOLOGY.

- 1.—ELEMENTARY PHYSIOLOGY. Forty assignments, five hours' College credit.
- 2.—GENERAL PHYSIOLOGY. Forty assignments, five hours' College credit.
- 3.—PHARMACY PHYSIOLOGY. Twenty assignments, two and one-half hours' Pharmacy credit.

## PUBLIC SPEAKING.

- 1.—THE COMPOSITION OF PUBLIC ADDRESSES. Forty assignments, five hours. Not for credit.

## ROMANCE LANGUAGES.

- 1.—ELEMENTARY FRENCH (Part A). Forty assignments, five hours' College or Engineering credit.
- 2.—ELEMENTARY FRENCH (Part B). Forty assignments, five hours' College or Engineering credit.
- 3.—MODERN FRENCH. Twenty-four assignments, three hours' College credit.
- 4.—COMPOSITION. Sixteen assignments, two hours' College credit.
- 1.—ELEMENTARY SPANISH (Part A). Forty assignments, five hours' College or engineering credit.
- 2.—ELEMENTARY SPANISH (Part B). Forty assignments, five hours' College or Engineering credit.

## SOCIOLOGY AND ECONOMICS.

1.—ELEMENTS OF ECONOMICS. Forty assignments, five hours' College credit.

2.—TRADE-UNIONISM AND LABOR ORGANIZATIONS. Twenty-four assignments, three hours' College credit.

3.—ELEMENTS OF SOCIOLOGY. Twenty-four assignments, three hours' College credit.

4.—SOCIAL PATHOLOGY. Sixteen assignments, two hours' College credit.

## ZOOLOGY.

1.—INTRODUCTORY ZOÖLOGY. Forty assignments, five hours' College credit.

53.—HISTOLOGY. Forty assignments, five hours' College or Graduate credit.

All correspondence with reference to correspondence instruction should be addressed to the University Extension Division, The University of Kansas, Lawrence, Kan. A special bulletin containing full description of all correspondence courses offered, and other general information, will be sent to any address on request.

## II. *The Department of Lecture-Study.*

Every year the authorities of the University of Kansas receive requests from various sources for lectures and addresses by members of the Faculty. Such requests come from high schools and colleges, religious bodies, commercial, professional and technical associations, educational associations, clubs and literary societies, alumni reunions, and lecture committees.

This lecture work, which has necessarily in the past been done in a more or less desultory and haphazard manner, under the general title of University Extension, has now been placed upon a permanent basis as one of the four departments of the University Extension Division. This department is called the Department of Lecture-Study, and is under the entire charge and control of the Director of University Extension. While single independent lectures will be offered as before for entertainment, information and culture, the emphasis of the department's efforts will be placed upon organizing courses or series of lectures which may be offered to serious-minded students as affording, at least approximately, the intellectual discipline and information and cultural value of regular University work in residence. Such courses of lectures will cover a general topic and will closely parallel in range and in character of work the regular classroom courses in residence.



By action of the University Council, the minimum length of a regular University Extension course is defined as six lectures. Of members of University Extension classes who are candidates for credit will be required, besides attendance at lectures, additional work prescribed by the lecturer, to include reference and other reading, conferences and examinations; and the maximum credit granted upon the satisfactory completion of such a course will be one semester hour. For such a course of six lectures the fee will be \$60 and the lecturer's expenses. With the consent of the department concerned, students who are candidates for the master's degree may count *in absentia* work done in Extension courses given by members of the University Faculty, to the extent of twelve hours, allowing two hours for each course of twelve lectures.

A bulletin descriptive of the single lectures and courses now offered to Kansas communities will be sent to any address on request. This bulletin contains full information as to terms, organization, methods of procedure, credits and other details. Inquiries and correspondence with reference to details of particular lectures or courses should be addressed to the University Extension Division.

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### III. *The Department of General Information and Welfare.*

This department of the University Extension Division has been organized with the view of making knowledge of all sorts more generally available to the people of Kansas. The results of original research and investigation are generally published either in scientific journals or in monographs of learned societies, or in the bulletins of the various departments at Washington. In any one of these cases the man who wants information on any particular subject is generally not in touch with these various sources of publication, and even when he is, all too frequently the matter of the bulletin or article is couched in such technical language as not to be easily understood by the untrained reader.

The business of this department is to gather together all sorts of material that contains information of value or of interest to the citizen of the state, whether he be interested primarily in problems of business, finance, sociology, municipal government, sanitation, education, pure food, or any one of a hundred topics that touch every man's life vitally in his relations with his fellow men, with his community and his commonwealth. This documentary material is classified and filed for reference and made readily available to anyone who desires to make use of it.

Farmers' institutes, women's clubs, literary clubs, study clubs, and other social and literary organizations of the state, whose

members desire to spend the winter in the study and discussion of live questions of the day—questions on whose proper solution depends the political and social welfare of the coming generation—will be helped so far as possible in forming an organization, in choosing subjects, and in finding material. Women's clubs are also furnished with programs, outlines for study, and references for papers and addresses.

Under this department there has been formed a bureau of municipal research, which attempts to do for city officials and public-spirited citizens what a legislative reference library does for legislators. This bureau acts as a clearing house for information and ideas concerning all kinds of municipal problems, such as those concerned with city charters, sanitation, water-works and other public utilities, franchises, uniform accounting, etc. The experiences of cities all over the country are brought together and placed at the disposal of Kansas municipalities, that they may profit both by the mistakes and by the successes of others. This is done in a nonpartisan way, and will give simply facts, impartially and without argument. Requests for information from municipal officers or interested persons will be welcomed and supplied as far as possible.

All communications should be addressed to the University Extension Division.

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#### ***IV. The Department of Debating and Public Discussion.***

One of the best means of encouraging the earnest and candid study of public questions is the formation of debating societies. For that reason, no village should be without such an organization, and for a high school or college to be without one should be as great an anomaly as to be without a library.

But the difficulty with debating lies in the finding of material and information. The Department of Debating and Public Discussion proposes to locate material on all current topics and to put the results into bulletins in the form of references to books, magazines, and other periodicals containing the required matter. When it is possible the material itself will be gathered together in the form of clippings and pamphlets and sent out as a loan collection. In addition, this department will help high-school authorities and others in the forming of debating societies and debating leagues, as well as in the training of debaters. THE KANSAS HIGH SCHOOL DEBATING LEAGUE has been organized, and for this League a bulletin has been prepared containing full bibliographs and references on nine debating subjects of current interest. This bulletin will be sent to any interested person on request.

Correspondence is invited from all those who are interested in forming debating societies, whether of young people or adults, for the discussion of public questions.

All communications referring to any of the matters-treated above should be addressed to the University Extension Division, The University of Kansas, Lawrence, Kan.





**PART IV.**

**Institutions Connected with the University and Under its Control.**

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## XI. *The Libraries.*

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CARRIE M. WATSON, Librarian.

EDITH M. CLARKE, Cataloguer.

CLARA S. GILLHAM, Loan Desk Assistant.

MARY M. SMELSER, Accession Assistant.

NELLIE BURNHAM, Reference Assistant.

SUSIE SHAFFER, Reference Assistant.

MARY A. COLLINS, Reference Assistant.

DORA RENN BRYANT, School of Engineering Assistant.

AMARETTE BULLENE WEAVER, School of Law Assistant.

The libraries of the University contain 71,545 volumes and 40,000 pamphlets. An annual appropriation of \$12,500 is devoted to the purchase of books, and during the year 1911-'12 about 5000 volumes and 2000 pamphlets will be added. The books are selected with great care, and the reader is furnished with the latest and the best authorities in the various departments. When opportunity permits, rare and unusual books are secured. To these, under proper restrictions, the students may have access. The library is large enough to enable the student to prosecute research and to carry on original investigation. Source material, in American and European history, in the various language departments, in science, in mathematics and in other subjects is being constantly added, so that the investigator has ample facilities to carry on advanced original work. The library has been greatly strengthened during the last few years, by the addition of many complete sets of journals of learned societies in the various departments of knowledge, and the current numbers of these journals are on file in the reading room.

### THE UNIVERSITY LIBRARY.

The University library is in the Spooner Library Building, and is open every day in the year, Sundays and holidays excepted. Library hours are from eight A. M. to ten P. M. when the University is in session and, during vacation from eight A. M. to six P. M. Liberal facilities for using the library are offered to all members of the University. All books, except reference books and books too rare to be easily replaced, may be taken from the library by the students for three weeks. However, if a book is needed for a special purpose or a class reservation, it may be recalled by the Librarian, and must be returned at once, after notice is received.

**BOOKSTACKS.** There are five stories in the stack room of the library, each eight feet high, making all the books within easy reach. The stacks and the flooring of these rooms are of steel, making a fireproof depository for the books. Books are classified and arranged on the shelves by the Dewey system.

**CATALOGUE.** The catalogue of the library contains about 130,000 cards. It is arranged alphabetically both as to author and subject, and the author and subject cards are catalogued together. Cards are arranged in cases in general reading room.

**THE GENERAL READING ROOM.** The general reading room is a large, comfortable, well-equipped and well-lighted room, on the main floor of the Spooner Library. It is furnished with 200 electric lamps. In this room are about 1000 volumes of general reference books, cyclopedias, dictionaries, Poole's Index to Periodical Literature, and other books which are of special value for reference purposes.

**DEPARTMENT READING ROOMS.** The departments of German philosophy, Latin, English and education have reading rooms on the lower floor of the library, and the departments of American and European history, sociology and economics have the whole of the upper floor of the building.

**PERIODICAL ROOM.** The University provides in this room 756 periodicals and publications of learned societies and 425 newspapers published in Kansas. The list of periodicals includes almost all of the important publications of America and Europe.

**OFFICES, ETC.** The office of the Librarian, the office of the cataloguer, and the accession room adjoin the general reading room, and on the lower floor are storerooms.

**DEPARTMENT LIBRARIES.** Besides the books in Spooner Library Building, there are eleven departmental libraries in the different buildings of the University. They are placed in close conjunction with the various laboratories and lecture rooms, so as to be immediately accessible to students in scientific work.

**THE LAW LIBRARY.** The law library is located in Green Hall. It contains 6500 volumes.

**THE ENGINEERING LIBRARY.** This is located in the Marvin Hall. All works and periodicals relating to civil, mechanical and electrical engineering are placed here. A reading room is attached.

### THE LAWRENCE PUBLIC LIBRARY.

The public library of Lawrence is open to students. This library contains 10,354 volumes, mainly of general literature and fiction, and 2250 public documents, and is a valuable supplement to the University library.



## XII. *The Gymnasium.*

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JAMES NAISMITH, A. B., M. D., Director.

Assistant Professor FISH.

W. C. LANSDON, A. B.

W. O. HAMILTON, A. B.

RALPH SHERWIN, B. S.

C. B. ROOT.

The Robinson Gymnasium, erected in 1907 at a cost of \$100-000, is one of the most modern and efficient gymnasiums west of Chicago. The three floors are equipped to accommodate the greatest number of students with the greatest variety of exercises. The basement floor has a locker room with special apartments for the various athletic teams, a system of shower-baths and a swimming pool. The first floor is equipped throughout with the most modern apparatus for general and special exercises. The second floor will be used for all forms of athletic development, and for the various indoor games. In the gallery of this floor is an eighteen-lap track, upon which the greatest speed may be obtained with the least effort. Special rooms are equipped for fencing, boxing, wrestling, and handball.

The gymnasium is designed to benefit all students of the University, not only by giving an opportunity for general exercise and healthy recreation, but also by providing means of caring for the body, correcting faulty attitudes and functions, developing skill, physical judgment, and self-control. It provides, therefore, for specific training in view of any physical defects that may be remedied by proper care.

The department is under the supervision of a director who is himself a trained physician. He gives courses in physical education in the College designed especially for those who intend to teach. Associated with him are specialists in the various athletic sports.

### EXAMINATIONS.

A thorough physical examination and measurement is offered each student and a record of results is kept as a basis for advice for exercise. The results are platted on charts, so that the student may compare himself with others and note the progress he is making. Those taking work in the gymnasium or on the athletic field must pass a satisfactory examination on entering the sport. At any time that the health of the student demands it,

he is debarred from taking part in any form of exercise that may injure him.

The director's office is equipped with apparatus for taking measurements and for making tests of health, skill, and strength.

The gymnasium is open from ten A. M. to six P. M. each day, Sundays excepted.

#### McCOOK FIELD.

McCook Field, the gift of Col John J. McCook, is situated only a short distance from the University and gives opportunity for all forms of outdoor athletics and sports. It contains a baseball diamond, a football field, a running track, and facilities for field athletics. A grand stand and bleachers accommodate the spectators.

### XIII. *The Museums.*

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FRANK STRONG, PH. D., *ex officio* Director of the Museums.

LEWIS L. DYCHE, A. M., M. S., Curator of the Mammals, Birds, and Fishes.

CLARENCE E. MCCLUNG, PH. D., Curator of the Vertebrate Paleontological Collections.

SAMUEL J. HUNTER, A. M., Curator of the Entomological Collections.

ERASMUS HAWORTH, PH. D., Curator of the Geological and Mineralogical Collections.

WILLIAM C. STEVENS, M. S., Curator of the Herbarium.

ALEXANDER M. WILCOX, PH. D., Curator of the Classical Museum.

HANDEL T. MARTIN, Assistant Curator of Paleontology.

CHARLES D. BUNKER, Assistant Curator of Mammals, Birds, and Fishes.

FRANCIS X. WILLIAMS, A. B., Assistant Curator of Entomological Collections.

The museums of the University are extensive and valuable. The collections were begun thirty-nine years ago by the late Dr. Francis H. Snow, and have been obtained chiefly during the past thirty-four years by University exploring parties in western Kansas, Colorado, Wyoming, Arizona, New Mexico, Texas, Oregon, British America, Alaska, Greenland, and South America. The expeditions were mainly under direction of the late Dr. Francis H. Snow, Dr. Samuel W. Williston, Dr. C. E. McClung, and Prof. Lewis L. Dyche, Prof. M. A. Barber, and Mr. Frank Agrelius. Twenty-six of these expeditions were conducted by the late Doctor Snow personally. By means of the material thus accumulated, a system of exchanges has been established with leading institutions and naturalists in all parts of the United States, so that the cabinets contain a very satisfactory representation of the fauna and flora, both recent and extinct, not only of the state of Kansas, but also the whole of North America. The collections are nearly all housed in the Museum of Natural History, completed in 1903 at a cost of \$75,000.

## ENTOMOLOGY.

The foundation for these extensive collections is the Francis Huntington Snow collection, the result of numerous expeditions and frequent exchanges conducted by the late Doctor Snow. In the collections there are in all about 1000 types determined by leading specialists in the respective groups. The collections now comprise about 26,000 species and 300,000 specimens, representing all the different orders of insects.

The orders of Lepidoptera, Coleoptera, Diptera, Orthoptera and Hemiptera are especially well represented. In the Coleoptera there are over 10,000 species; the Melanopli in Orthoptera are fully represented; the collection of Coccidæ in Hemiptera afford an excellent series for study of North American forms. These collections are being augmented annually through the University Biological Survey, being an intensive and consecutive systematic survey of all forms found within the state, their distribution and biology. The collection, as a whole, is one of the largest connected with any educational institution in the United States.

The work in connection with the museum now affords opportunity for study to students throughout the entire year, in the summer months on the survey, and in the winter months on a continuation of the study of the material obtained throughout the summer. A series of monographs on Kansas forms have been prepared and others are in progress. It is expected that these will be brought together in uniform size and binding.

Specialists frequently visit these collections for recourse to the large representation of types, and such visitors are always welcome. In order to insure the preservation of "types" it has been deemed advisable to adopt the policy of retaining all "types" in the museum.

These collections are of further practical value to the people of the state in the determination of the injurious and beneficial insects and answers to numerous inquiries upon this subject.

The collections occupy a part of the second and third floors in the Museum of Natural History.

## ZOOLOGY.

The collection of large mammals indigenous to the North American continent is very complete. The specimens include the more common and well-known animals of the United States, an excellent representation of the animals of the Atlantic coast as far north as Cape Sabine and from the continent of Greenland. Also a series from the Pacific coast as far north as the Aleutian islands and from the interior of Alaska. This large collection is being placed on exhibition on the second floor of



the Museum of Natural History, by Prof. L. L. Dyche and his assistants. The collection will occupy the entire floor, which will be known as "Mammal Hall." New material is constantly being added, and mounted for study and exhibition.

In the ornithological collections there are between 3000 and 4000 specimens, most of which are carefully protected in moth-proof cases. Many of these are unmounted skins, furnishing ample material for laboratory study when fresh specimens cannot readily be obtained. There is also a fine series of skeletons, representing species in size from the shrews and bats to elephants and whales.

A representative collection of marine invertebrates from the Atlantic and Pacific coasts and from Bermuda provides material for study and investigation. Very large additions to these collections were made by recent expeditions to Puget Sound.

In the conchological cabinet are included nearly 1000 species of shells, from all parts of the world.

### PALEONTOLOGY.

The collections in paleontology offer excellent facilities not only for instruction in general stratigraphic geology, but also for special advanced work in systematic paleontology. The collections of invertebrates include about 2000 species, distributed among about 500 genera. They represent all of the principal geological formations, but are especially rich in Kansas forms. The numbers of genera and species from the chief geologic groups are nearly as follows:

Tertiary, 80 genera, 200 species.

Cretaceous, 80 genera, 200 species.

Jurassic, 10 genera, 30 species.

Triassic, 25 genera, 75 species.

Permo-carboniferous, 60 genera, 750 species.

Devonian, 80 genera, 300 species.

Silurian, 75 genera, 250 species.

Ordovician, 90 genera, 250 species.

Cambrian, 20 genera, 30 species.

The collection of fossil vertebrates is one of the largest in America, particularly in Cretaceous forms. From the Miocene Tertiary of Kansas, Wyoming and South Dakota nearly all the known genera are represented. Of the Cretaceous animals there are hundreds of specimens, including not a few of exceptional perfection and completeness. The specimens of birds and reptiles are particularly important and valuable. All together, about 400 species of extinct vertebrates are represented in the museum.

Valuable additions are constantly being made to the collections, both of invertebrates and vertebrates, chiefly by field ex-

peditions. During the last two summers the collection of Cretaceous fishes was much strengthened through additions made by an expedition to western Kansas. All the collections have been gone over and catalogues prepared, so that reference to the specimens is much easier. In order to render the collections as interesting and profitable as possible the specimens have been supplied with descriptive labels, and a synoptic, or index, case has been placed at the entrance to the paleontology rooms. The collection occupies the most of the upper floor of the Museum of Natural History.

#### PALEOBOTANY.

The collection in paleobotany is especially rich and valuable, representing thousands of specimens. The Dakota and Comanche Cretaceous series are the most extensive, and include many types of species and undescribed forms. In addition to the collection of Tertiary plants, there is a very large and valuable series of Carboniferous plants from Kansas, including many new forms. The collection is placed with that of paleontology. The purchase of a number of cases has made it possible to put on exhibition many more specimens than have been before open for public inspection.

#### THE HERBARIUM.

The herbarium includes about 10,000 specimens, identified and labeled, of flowering plants, besides much material partly identified. The flora of Kansas and of the western Rocky Mountains is well represented. There is also a considerable amount of cryptogamic material, including sets of economic fungi of North America and of North American lichens. The herbarium is housed in Snow Hall.

#### GEOLOGICAL COLLECTIONS.

The museum of economic and physical geology contains many hundred specimens. In economic geology there is a large collection of ores of various kinds, especially chosen to represent first, the character of the ores, and second, the mode of ore formations. Specimens of almost all kinds of ores and other economic products, such as gypsum, coal, oil, etc., are included and arranged in accordance with the two ideas: first, of economic value, and second, of origin or formation. Specially to be mentioned in this connection is a very complete collection of lead and zinc ores and associated minerals from the Galena-Joplin district, which is the greatest field for mining zinc ore known in the world.

The petrographic collection contains about 2000 specimens of crystalline rocks from all parts of the world including an un-

usually large collection of granites, porphyrites and basic dike rocks from the area of crystalline rocks in Missouri. There is also a large and specially selected collection of crystalline rocks from New Hampshire, and another collection from the Lake Superior region.

The mineralogical collection is divided into two groups: first, a working collection for students in the mineralogical laboratory, and second, an exhibitiv collection for the museum. The former contains fair specimens and material for use in the laboratory, but representing all the leading classes of minerals, while the latter contains more pretentious and showy specimens, more generally interesting to the public.

### THE CLASSICAL MUSEUM.

The classical museum contains full-sized plaster casts of the Hermes and Satyr of Praxiteles, the Venus of Melos, the so-called Theseus of the Parthenon, three Metopes and fifty-five feet of the frieze of the Parthenon, Varvakeion and Lenormant statuettes, and the Strangford shield of the Athena Parthenos, the Hegeso tombstone, the Orpheus relief, the Satyr and Mænad relief, the Borghese Warrior, the Discobolos of Myron as restored by Furtwängler, Augustus in military dress, the so-called Germanicus, nineteen busts of Greek sculpture, and Greek and Roman authors and emperors, two Tanagra figurines, and the Nike of Paionios inscription.

Models of the Acropolis of Athens, the east pediment of the Zeus temple at Olympia, and the Victories of Paionios and Samothrace.

Facsimile reproductions of the two Vaphio gold cups, the so-called Nestor's cup, the lion-hunt sacrificial knife, a gold mask, a diadem, and a series of smaller gold objects found in Mycenæan graves.

Relief maps of Athens and Rome.

Laloux's restorations of Olympia, Defrasse's restorations of Epidaurus, Pontremoli's restoration of Pergamon, and Weichardt's restoration of Pompeii.

Stuart and Revett's *Antiquities of Athens*, 363 plates; Penrose's *Athenian Architecture*, 47 plates; Inwood's *Erechtheum*, 39 plates; Bohn's *Propylæa*, 21 plates; Ross, Schaubert and Hansen's *Athena Nike Temple*, 13 plates; Michaelis's *Parthenon*, 15 plates; Cockerell's *Temples of Ægina and Bassæ*, 37 plates; Koldewey and Puchstein's *Temples of Lower Italy and Sicily*, 29 plates; Major's *Temples of Pæstum*, 25 plates; Adler's *Mausoleum*, 5 plates; Le Roy's *Ruins of the most beautiful monuments of Greece*, 60 plates; Fenger's eight colored plates of Doric architecture; the plates of the final reports of the excavations at

Assos and Delphi, as far as they have yet been published; Piranesi's large engravings of the columns of Trajan and Marcus Aurelius; twelve photographs of architectural models in the Metropolitan Museum, New York.

A complete set (630 so far) of Brunn's plates of Greek and Roman sculpture; 55 Braun photographs of the Elgin marbles; 139 plates of the Sabouroff collection of sculpture, terra-cottas, vases, and bronzes; Furtwängler's ancient gems, 67 plates; 82 plates of the silver vases and utensils found at Hildesheim and Roscoreale; 6 colored plates of Odyssey paintings found in Rome; Dodwell's 30 views of Greece, in color; Lau's and Genick's 84 colored plates of Greek vases; 27 colored plates of Greek vases in the British Museum; Furtwängler and Loeschke's Myocænæan vases, 49 plates; Harrison and MacColl's Greek vases, 43 plates; Furtwängler and Reichhold's large plates of Greek vases, as far as they have been published, 130; 11 colored plates of Greek and Etruscan terra-cotta sarcophagi in the British Museum; Hermann's reproductions of antique paintings (77 so far); Preller's four cartoons of wall-paintings of ancient Greek landscapes in the Albertinum at Dresden; 30 plates of Monumenti Inediti and Antike Denkmæler vases, sculpture, and architecture; 650 photographs illustrating Roman topography and life.

A facsimile of the whole of the Bacchylides manuscript; 36 plates of other Greek manuscripts; 25 facsimiles of Biblical manuscripts in the British Museum; 30 facsimiles of the Flinders Petrie Egyptian Greek papyri; 62 plates of Latin manuscripts; Roehl's collection of oldest Greek manuscripts, many of them in facsimile.

Baumeister's monuments of classical antiquity, 95 plates and 2400 illustrations; 2000 stereopticon slides of Greek and Roman views, portraits, buildings, statues, paintings, vases, and manuscripts.

The classical museum is located in Fraser Hall, south wing, second floor.



## XIV. *Geological Survey.*

FRANK STRONG, PH. D., Director, *ex officio*.  
ERASMUS HAWORTH, PH. D., State Geologist.  
EDGAR H. S. BAILEY, PH. D., Chemist.

THE UNIVERSITY GEOLOGICAL SURVEY OF KANSAS was organized by the Board of Regents of the University in 1894, under the general authority given them by law, and was given especial sanction and authority by legislative enactment from 1897 to 1907, when the present law was passed. The object of the Survey is to accomplish a geological survey of the state as rapidly as possible, giving a complete exposition of the geological and mineralogical resources of the state, including all subjects of economic and scientific importance.

By provision of law the Chancellor of the University is *ex officio* Director of the Survey, and the head of the department of geology and mining is superintendent and state geologist. It is contemplated that the work will be done principally by members of the University faculty and advanced students, so that the cost to the state will be a minimum. The results already obtained have been of great value to the state, especially in the development of coal, oil, gas, Portland cement, gypsum and its products, and clay manufactories.

Work was begun on the survey in 1893 and has been carried forward steadily ever since. Throughout this time from five to twelve assistants have been doing field work every summer vacation. The laboratory work and literary work have been done principally throughout the remaining nine months of the year. The subjects thus far studied and reported upon are given in the following list of publications. Other subjects have been studied to a great extent, but not yet sufficiently for the completion of a report.

### PUBLICATIONS OF THE STATE GEOLOGICAL SURVEY.

The Survey has already published the following reports, all of which are for free distribution, the recipient paying transportation charges. (Those marked with a star are out of print.)

- Volume I, 1896—Reconnaissance Report on General Stratigraphy of Eastern Kansas.\*  
Volume II, 1897—General Geology of Western Kansas.\*  
Volume III, 1898—Special Report on Coal..... 28 cents.

Volume	IV, 1898—On Upper Cretaceous Paleontology.*	
Volume	V, 1899—Special Report on Gypsum and Gypsum Cement Plasters.....	16 “
Volume	VI, 1900—Carboniferous Invertebrates and Cretaceous Fishes .....	28 “
Volume	VII, 1902—Mineral Waters .....	20 “
Volume	VIII, 1906—Special Report on Lead and Zinc..	28 “
Volume	IX, 1909—Special Report on Oil and Gas.....	32 “
Volume	X, 1910—A Special Report on Mine Explo- sions, in preparation.	
	Report on Mineral Resources of Kansas for 1897.....	4 “
	Report on Mineral Resources of Kansas for 1898.*	
	Report on Mineral Resources of Kansas for 1899.....	4 “
	Report on Mineral Resources of Kansas for 1900, 1901..	5 “
	Report on Mineral Resources of Kansas for 1902.*	
	Report on Mineral Resources of Kansas for 1903.....	3 “

Volume I is devoted entirely to reconnaissance work in stratigraphy and a preliminary description of the general geology of eastern Kansas, with a short description of the oil and gas fields of the state and a preliminary catalogue of invertebrate fossils found in the Carboniferous age.

Volume II is a similar description of the stratigraphy and other features of general geology of western Kansas, being a companion to volume I. It has a short chapter on some phases of vertebrate paleontology.

Volume III is a special report on coal, giving a general account of the stratigraphy of eastern Kansas, the most extensive yet published, and a detailed account of the coal-bearing strata of the state, methods of mining, the chemical and physical properties of Kansas coal, and other points of a like nature.

Volume IV is devoted entirely to the paleontology of the Upper Cretaceous. It is profusely illustrated with plates and cuts of vertebrate fossils from western Kansas.

Volume V is a special report on gypsum and gypsum cement plasters, giving the results of about three years' investigation. This is probably the best account yet published on this interesting product.

Volume VI is the second volume on paleontology, and is occupied jointly by Carboniferous invertebrates and Cretaceous fishes.

Volume VII is devoted entirely to the mineral waters of the state, and gives a description not only of the mineral waters of Kansas, but of mineral waters in general.

Volume VIII is a special report on lead and zinc.

Volume IX is a special report on oil and gas, with many maps and geological sections and a lithographic geological map of the state.

Volume X is a special report on coal-mine explosions, giving a history and tabulation of all recorded mine explosions of the world, and their causes, when known, followed by extensive study of mine gases, coal dust, modes of ignition and other causes leading to mine explosions and mine fires, with suggestions and recommendations for prevention of the same. Ready soon.

The series of annual reports began with a report on the mineral productions of the state for 1897 and was continued to 1903. The reports for 1900 and 1901 were issued jointly. Largely they are repetitions of the same subjects, as each one of them contains a complete summary of the total state production to date. They cover the subjects of gold, silver, lead and zinc, coal, oil, gas, clay products, gypsum, hydraulic and Portland cements, building stone, and salt.

The report for the year 1902 was delayed in publication and thereby admitted a short report on the extraordinary flood of the Kansas river in May and June, 1903. The report for 1898 contains an extended description of Kansas salt as a special article, and similarly the report for 1902 has a specially prepared chapter on Portland cement.

For the years 1910 and 1911 work was confined principally to the completion of a stratigraphic and paleontologic survey of the Permian of Kansas and to an exhaustive study of the clays of the state. Neither of these is yet completed. The legislature of 1911 made a special appropriation for the erection and equipment of a clay-testing laboratory. After its completion the Survey will be prepared to test all clays of the state by all the methods known to science and the arts. It is proposed to prosecute the work of testing Kansas clays as rapidly as possible.

## XV. *Engineering Experiment Station.*

### STATION STAFF.

FRANK STRONG, PH. D., President.

FRANK O. MARVIN, A. M., Director. Civil Engineering.

EDGAR H. S. BAILEY, PH. D., Chemical Engineering.

ERASMUS HAWORTH, PH. D., Mining Engineering.

PERLEY F. WALKER, M. M. E., Mechanical Engineering.

GEORGE C. SHAAD, E. E., Electrical Engineering.

### PURPOSES.

This department of University activity has been established for two reasons: First, to correlate and group together in a more systematic way the results of scientific investigation that heretofore has been done under the various departments; second, to foster, enlarge and direct this work, especially along lines of value to this state, and to supervise the publication and distribution of the results of engineering and industrial research work.

Considerable work of practical value has already been done in the past few years, such as investigations of Kansas building stone, of Kansas stone for macadam roads, of paving brick, the action of repeated stresses on concrete, of the shearing strength of concrete, of the properties of hydraulic cements, of the purification of sewage, of variations in the flow of sewage, of the waters of the state, both surface and underground, of the composition of Kansas oils and gases, of the flow of gases through nozzles, of the lubricating value of Kansas oils, of the application of chemistry to manufacturing industries, etc.

Much of this kind of material lies incomplete and unused in department records for the lack of funds to complete the investigations and an efficient organization to stimulate the work and bring out results for the public benefit.

The field to be covered, and in which there are many questions arising that can be investigated to the best advantage in the well-equipped laboratories of the University, is a very large one, including such subjects as structural materials, coals, ores of lead and zinc, gypsum, clays, hydraulic cements, oils, gases as they are used for illuminants or as they produce explosions in



mines or elsewhere, the waters of the state, water supplies for potable and mechanical uses, the character and disposal of sewage and other waters, the influence of bacterial action on the design and operation of public sanitary works, hydraulic power plants, applications of electricity to service, chemistry in the arts, and many other lines of investigation of direct utility.

During the past year several lines of investigation of problems affecting engineering work have been under way. It is expected that results of some of these will be ready for publication in the shape of bulletins of the Station during the coming year.

The bulletins of the Station are issued in a special series with a consecutive numbering, the initial number having been published in the early days of 1910.

All communications with reference to the work of the Station or its publications should be addressed to the Director.

## XVI. *Division of School Visitation.*

WILLIAM H. JOHNSON, A. M., High-school Visitor.

RAYMOND A. SCHWEGLER, A. M., Director of School Service.

### PURPOSES.

The three parts of our educational system bear a mutual relationship to one another. The more or less arbitrary partition of the entire system into elementary, secondary and higher education is recognized for administrative purposes only, and does not in any sense preclude an organic relationship. The grade school curriculum opens the way to the high school, and the high school in turn should make it possible for every student to take the next step, whether it be into the University or College for advanced study, or out into the world of business or other activities. The spirit and purpose which characterize all of these parts have the same end in view, namely, to provide the best educational advantages for the youth of the state and keep before them the ideals of a higher and richer life.

Some of the characteristics of this mutual relationship have been pointed out by legislative enactment. For instance, the county-high-school law provides that a school organized under its provisions must maintain a course of study which will enable its graduates to enter the Freshman class of the University without condition. Again, it is more definitely pointed out in two different clauses of the Barnes law that the University shall determine the standard which high schools must reach in order to receive the benefits provided for by that act.

There are two general methods of admitting students to college: one is by an examination conducted by the college or university faculty; the other is by accrediting schools and an occasional examination thereafter of the work done in them. The University of Kansas has adopted the latter method. In order that the University may pass intelligently upon the qualifications of the students who present themselves for matriculation, it is necessary to know the character and amount of work done by each. The only feasible way by which the conditions of work in the high school may be known is by visitation and careful, sympathetic inspection. The University, therefore, has a double purpose in the prosecution of this phase of educational work. It is possible in the first place to secure greater unity in the conduct of high-school work. It also affords an opportunity

of giving advice, where needed, concerning equipment, organization, character of teaching, and many problems connected with high-school work. Thus it is intended that high-school visitation should be of real value to the schools themselves.

The Division of School Visitation as at present organized by the University represents two special phases of work, namely, high-school visitation, and lectures especially prepared for teachers' meetings and summer institutes.

#### DEPARTMENT OF HIGH-SCHOOL VISITATION.

This department of University activity has for its purpose the development of a wholesome relationship with the high schools of the state. Upon invitation of the principal or superintendent the Visitor will examine the high school, or if for any reason it seems desirable that he should confer with principals and instructors about their work, or concerning relations mutual to the University and the high school, he will visit and examine the work of the school, making such observations upon the equipment, character and amount of instruction as time and opportunity will permit. The Visitor also proposes to furnish principals and superintendents with suggestive courses of study, giving special directions with reference to College entrance requirements, to describe in detail the amount of work that should be covered in each unit of time, and, when possible, aid superintendents and boards of education in the selection of high-school teachers. He also desires to assist school authorities in every possible way to increase the efficiency of their schools and make of them consistent educational forces in the life of the community. Inquiries will be promptly answered. Address High-School Visitor, The University of Kansas.

#### DEPARTMENT OF SCHOOL SERVICE.

The second department of school visitation is more general in character and is planned to meet a greater variety of school interests. It constitutes in effect a service bureau, maintained by the University for the benefit of the public schools of the state.

The department endeavors to do all in its power to stimulate popular interest in education; to support and advocate progressive school movements, and to disseminate among teachers, pupils and patrons the highest educational ideals of the day. To this end the division issues bulletins, publishes papers, arranges for rally meetings and conferences, and furnishes lecturers to address teachers' meetings and other educational gatherings.

The department is freely at the service of all school officers in the state, and inquiries with reference to its work when addressed to the director in charge will be cheerfully and promptly answered. Address The Department of School Service, The University of Kansas.

## ACCREDITED SCHOOLS.

High schools which maintain a satisfactory standard of proficiency, and which maintain a four-year course of study in which are fifteen units of work prescribed for entrance to the Freshman class, are recognized by the University of Kansas by placing them on an accredited list. The list of schools thus accredited is revised each year and published in the annual catalogue and also in the High-school Manual. The graduates of schools accredited by the University, when recommended by the principal or superintendent, are entitled to entrance credit without examination, provided the subjects for which they ask credit are distributed according to the requirements outlined in catalogue, page 115. Some of the points which are considered in accrediting a school are stated as follows:

1. The instructors should be well qualified and specially trained, both with reference to subject matter and methods, for a special line of work. They should be graduates of a university, college, or high-grade normal school.

2. Instructors should not be required to carry more than six recitations per day, and these should be confined to two general lines of work.

3. In the larger high schools (those enrolling 300 or more) the principal should have at least one-half of his time for supervision; in the smaller schools he should have from one to three periods a day for the same purpose.

4. The number of teachers devoting full time to grade work is important. Three should be the minimum for a fully accredited high school.

5. The school year should contain thirty-five weeks of actual school work.

6. The laboratories should be furnished with tables for individual work and such apparatus as is necessary to enable the students to perform all experiments.

7. A laboratory period should be twice the length of a recitation period, and in each of the sciences there should be two laboratory periods per week.

8. Students should have access to standard books of reference and supplementary works in literature, history, science and art.

9. The efficiency of instruction, habits of thought and study, and general intellectual and moral conditions in a school, are important factors, and therefore only the schools which rank well in these particulars, as evidenced by careful, sympathetic inspection, shall be considered eligible for this list.

The University will honor all certified entrance credits from high schools and academies which are accredited by the North Central Association of Colleges and Secondary Schools.



## CLASS I.

Schools listed in class I are fully accredited.

<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Abilene.....	W. A. Stacey, B. S.....	R. B. Downs, A. B.
Alden.....	Louis Ringwalt.....	Estelle Dougherty, A. B.
Alma.....	E. B. Gift, A. B.....	C. P. Mueller, B. Pd.
Altoona.....	H. C. Duckworth.....	Grace D. Graham, A. B.
Anthony.....	B. E. Lewis, A. M.....	G. C. Bailey, A. B.
Argentine.....	M. E. Pearson, B. Pd.....	F. D. Tracy.
Arkansas City.....	John F. Bender, A. B.....	J. F. Gilliland, A. B.
Ashland.....	O. O. Smith, A. B.	
Atchison County, Effingham.....		Edgar H. McMath, A. B.
Atchison.....	Nathan T. Veatch.....	J. T. Rosson, A. B.
Attica.....	O. E. Hazlett, A. B.....	Cora Thomas, A. B.
Augusta.....	Chas. W. Pratt.	
Axtell.....	S. L. Soper, A. B.....	E. C. Farrar.
Baker Academy, Baldwin.....		W. A. Cook, M. S.
Basehor.....	Chas. W. Ashbaugh, A. B.	
Belle Plaine.....	P. N. Heck.....	Florentine Hackbusch, A. B.
Belleville.....	L. P. Wharton, B. S.....	Mrs. Adelia Haynes.
Beloit.....	A. P. Gregory, B. S.....	J. L. Mickey, Pd. B.
Bethel Academy, Newton.....	J. H. Langenwalter, A. B.....	Emil R. Riessen, A. B.
Blue Rapids.....	J. H. Clement, A. M.....	E. M. Bartholow, A. B.
Bonner Springs.....	Cowles Wright, A. B.....	Marguerite Bliss, A. B.
Bronson.....	A. E. Lunceford.	
Burden.....	N. H. Bartlett, B. S.	
Burlingame.....	C. A. Deardorff, M. E.....	Nellie Terrill.
Burlington.....	W. S. Rupe, A. B.....	Mary E. Parker, A. B.
Burrton.....	H. J. Davis.....	Laura Nicholson, A. B.
Caldwell.....	D. C. Porter, A. B.....	Stella K. Stuart.
Campbell College, Academy, Holton...	Pres. T. D. Crites, M. S.	
Caney.....	Chas. H. Williams.....	Frank R. Aldrich, A. B.
Chanute.....	H. D. Ramsey.....	J. A. Cannan.
Chase County, Cottonwood Falls...		A. M. Thoroman, A. B.
Chelsea, Kansas City.....	D. C. Stephens.....	Herbert L. Drake, B. Ph.
Cheney.....	B. W. Daily, A. B.....	Mary Kesler, A. B.
Cherokee County, Columbus.....		M. L. Catlett.
Cherryvale.....	N. A. Baker, LL. B.....	W. L. Goad, B. S.
Clay County, Clay Center.....		E. B. Allbaugh.
Clyde.....	M. H. Harper.....	Fern Fitzpatrick, A. B.
Coffeyville.....	Wm. M. Sinclair.....	R. Y. Kennedy.
Coldwater.....	W. L. Dunbar, A. B.	
Concordia.....	C. C. Brown, A. M.....	F. M. Heaton, A. B.
Cooper Academy, Sterling.....	Pres. R. T. Campbell, D. D.	
Council Grove.....	L. D. Dice, A. B.....	H. M. Brown, A. B.
Crawford County, Cherokee.....		W. S. Pate.
Decatur County, Oberlin.....		A. I. Clow, A. B.
Dickinson County, Chapman.....		J. P. Perrill, B. P.
Dodge City.....	Hugh Durham, A. B.....	J. E. Coe, A. B.
Douglass.....	W. J. Poundstone, A. B.....	Pearl D. Miller, A. B.
El Dorado.....	B. F. Martin.....	John B. Heffelfinger, A. B.
Ellis.....	M. C. Martin.....	Clara W. Carpenter, A. B.
Ellsworth.....	O. J. Silverwood A. B.....	Ethel Thomas, A. B.
Emporia.....	L. A. Lowther, A. B.....	Chas. A. Wagner, A. B.
Enterprise Normal Academy.....		W. F. Isler, A. B.

<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Eskridge.....	G. A. Brown.....	J. E. Crawford, LL. B.
Eureka.....	W. S. Robb, B. S.....	E. B. Barnes.
Fairmount Academy, Wichita.....		O. B. Finch, A. M.
Florence.....	H. E. Clewell.....	Mrs. Ethel R. Knight.
Fort Scott.....	J. B. Stokesberry, A. B....	J. E. Hughes, A. B.
Frankfort.....	M. G. Kirkpatrick.....	Mary K. Phenicie, A. B.
Fredonia.....	A. I. Decker, B. S.....	W. I. Mathews.
Friends University Academy, Wichita..		E. H. Stranahan, A. M.
Galena.....	L. A. Guthridge.....	R. R. Cook, A. B.
Garden City.....	G. E. Brown.....	E. J. Dumond.
Garnett.....	C. H. Oman, A. B.....	Geo. R. Hiatt, A. B.
Gas City.....	F. E. Osborn.....	Sophia Shawver.
Girard.....	H. W. Shideler, A. B.....	M. H. Yager.
Great Bend.....	A. F. Senter, B. S.....	O. C. Hull, A. B.
Halstead.....	B. P. Young, B. S.....	W. O. Gibbon, Ph. B.
Hanover.....	J. R. Gibbins, A. B.....	Mary E. Hamilton, Ph. B.
Harper.....	A. L. Stickel, A. M.....	E. L. Fulton, A. B.
Hartford.....	Anna H. Brogan.	
Hays.....	H. R. Turner, A. B.....	Annice P. Hopkins.
Herington.....	A. J. McAllister, B. S....	Francis Robb, A. B.
Hiawatha.....	S. W. Moore, B. S.....	Geo. F. Moll, A. B.
Hoisington.....	T. M. Keegan, A. B.....	H. L. Pasley.
Holton.....	H. H. Van Fleet, A. B....	H. W. Gowens, B. S.
Horton.....	A. H. Speer, A. B.....	Mabel O. Turner.
Howard.....	H. I. French.....	Anna S. Lees.
Humboldt.....	Chas. M. Hilleary.....	Joseph H. Byers, A. B.
Hutchinson.....	J. O. Hall, A. B.....	S. L. Palmer, B. S.
Iola.....	L. W. Mayberry, A. B....	W. H. Carothers, A. B.
Jewell City.....	L. D. Griffiee.....	John J. Fowler.
Junction City.....	W. S. Heusner, A. M.....	J. W. Shideler, Ph. B.
Kansas City.....	M. E. Pearson, B. Pd.....	H. L. Miller, A. B.
Kansas Wesleyan Academy, Salina..		G. E. King, M. S.
Kingman.....	A. W. Ault, A. B.....	Chas. A. Hall, A. B.
Kinsley.....	D. A. Baugher.....	A. E. Buxton.
Kiowa.....	Ira Stout.....	Josie F. Frazier, A. B.
Labette County, Altamont.....		W. M. Kyser, A. B.
La Cygne.....	C. W. Thompson.....	Mabel Stevenson, A. B.
La Harpe.....	Joseph I. Knott, A. B....	Frank McCafferty.
Larned.....	R. V. Phinney.....	A. L. Hollister, A. B.
Lawrence.....	F. P. Smith, A. M.....	F. H. Olney, A. B.
Leavenworth.....	G. W. Kendrick.....	Arthur H. Mabley, A. M.
Lebanon.....	John R. Thierstein, Ph. D..	Jessie L. Baker, Ph. B.
Leon.....	Frank C. Smith, B. S.....	Etta Marshall.
Le Roy.....	I. C. Gregory, A. B.....	Flora Sherman.
Lewis Academy, Emporia.....		Orville T. Wilson, A. B.
Lindsborg.....	I. C. Myer, A. B.....	Esther Sundstrom, A. B.
Linwood.....	Fred F. Busch, A. B.....	Eleanor Sirpless, A. M.
Lincoln.....	R. E. Long.....	Mary B. Nelson.
Little River.....	C. A. Murphy, B. S.....	Audrey V. Gardner, A. B.
Lyons.....	T. A. Edgerton.....	Alvin S. Good, A. B.
Mankato.....	F. W. Simmonds, M. S....	Maud Hulse, B. Pd.
Marion.....	C. E. St. John.....	George E. Jones, A. B.
Marquette.....	Guy H. Jaggard.	
Marysville.....	R. L. Parker, A. M.....	A. D. Catlin, A. B.
McPherson.....	Geo. G. Pinney, A. M.....	A. B. Cope, A. M.
McPherson Academy..	Pres. Edw. T. Frantz, A. M.	
Medicine Lodge.....	D. W. Major, A. M.....	Annie E. Bell, A. B.
Midland College Academy, Atchison.		George N. Mendenhall.
Minneapolis.....	C. O. Smith.....	G. R. Duer, A. M.
Montgomery County, Independence.....		S. M. Nees, A. M.
Moran.....	R. K. Lindberg.....	Hattie B. Maupin, A. B.
Nazareth Academy, Concordia.....	Sister M. Louise.	

<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Neodesha.....	O. F. Grubbs.....	Bessie G. Ryan.
Newton.....	L. J. Hall.....	G. D. Bradley, A. B.
Norton County, Norton.....		H. H. Gerardy.
Oakley.....	F. W. Irwin.	
Olathe.....	C. M. Ware.....	H. T. Steeper, A. B.
Onaga.....	C. H. Landrum, A. M.....	Pearl Foulk, A. B.
Osage City.....	C. A. Yeomans, A. B.....	J. S. Magnuson, A. B.
Osawatomie.....	Floyd B. Lee.....	H. B. Amyx.
Osborne.....	W. H. Wolfe, A. B.	
Oskaloosa.....	A. S. Hiatt, A. B.....	Olive Collins, A. B.
Oswego.....	A. K. Loomis, A. B.....	Ellen Boyle, A. B.
Oswego College Academy.....	Thos. F. Marshall, A. M....	E. May Parker, A. B.
Ottawa.....	A. L. Bell, Ph. D.....	R. E. Gowans, A. B.
Ottawa Academy.....		H. H. Foster, Ph. D.
Paola.....	John F. Barnhill, A. B....	Sadie Van Aken, A. B.
Parsons.....	F. L. Pinet.....	J. A. Fray, A. B.
Peabody.....	J. W. Roberts, A. B.....	Elida Hanson.
Pittsburg.....	A. H. Bushey, A. B.....	Robert E. Hartsock, B. S.
Plainville.....	F. Carleton Marks.....	Belle Lunden, B. S.
Pleasanton.....	F. H. Gillette, A. B.....	Eleanor Blakey, A. B.
Pratt.....		R. Thane Cook, A. B.
Rosedale.....	George E. Rose, M. S.....	Ava Douthart, A. B.
Reno County, Nickerson.....		E. B. Smith, A. M.
Rose Hill.....		John W. Charles, A. M.
Russell.....	N. U. Spangler.....	Clara M. Jackson, B. D. I.
Sabetha.....	George T. Beach, A. M....	Guy O'Roke, M. Accts.
Saint John.....	B. F. Crocker.....	H. V. Matthew.
Salina.....	John Lofly, A. B.....	Albert E. Avey, A. M.
Sedan.....	Howard J. Hanna.....	Ethel M. Childers.
Sedgwick.....	Robert N. Halbert, Ph. B...	Muriel E. Finn, A. B.
Seneca.....	R. G. Mueller, A. B.....	M. C. Prunty, A. B.
Sharon Springs.....	A. D. Haas.....	Maurice L. Smith, B. Pd.
Sheridan County, Hoxie.....		H. C. Jent.
Sherman County, Goodland.....		E. E. Mitchell, Ph. B.
Smith Center.....	Guy Warren, A. B.....	G. Ray Sharp.
Solomon.....	W. O. Steen.....	Jessie Mustard.
Southern Kansas Academy, Eureka.....		Morton M. Newcomb, A. B.
Southwestern College Academy, Winfield..	Pres. F. E. Mossman, A. M..	R. B. Dunlevy, A. M.
Spring Hill.....	O. N. Berry.....	
Stafford.....	E. C. Kittell, B. Pd.....	Carolyn Dudley, A. M.
Sterling.....	George L. Seeley, A. B....	Jeannette M. Inches, B. S.
St. Marys Academy, Leavenworth.....	Sister M. Olive.....	Sister V. Marie.
Stockton.....	L. M. Spray, A. B.....	Hazel Smith, A. B.
Sumner County, Wellington.....		H. P. Butcher, A. B.
Sumner, Kansas City.....		J. M. Marquesse, A. B.
Thomas County, Colby.....		R. K. Farrar, B. S.
Tonganoxie.....	W. G. Gambill.....	J. C. Morgan, A. M.
Topeka.....		A. J. Stout.
Trego County, Wa Keeney.....		J. H. Niesley, A. B.
Troy.....	C. S. Hambleton.....	J. P. Corcoran.
Valley Falls.....	Harry McGuire.....	Maud Myers.
Wamego.....	J. P. McCoy.....	E. P. Kendall, A. B.
Washburn Academy, Topeka.....		Robert Fry Clark, A. M.
Washington.....	J. W. Murphy, A. B.....	R. H. McWilliams, A. B.
Waterville.....	G. H. Baird.....	Clara Speckman.
Wathena.....	Chas. S. Todd.....	Alex. Spencer, A. B.

<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Wetmore.....	George B. Neff, B. S.	
Whitewater.....	R. L. Hazzard, A. B.....	Grace Miller, A. B.
Wichita.....	R. F. Knight, B. Ph.....	I. M. Allen, A. B.
Winfield.....	J. W. Spindler, A. M.....	J. W. Gowans, A. B.
Yates Center.....	L. H. Wishard.....	Grace Melton.

## CLASS II.

Schools listed in class II offer an approved four-year course of study but fail to meet all the conditions for full accreditation.

<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Agra.....	H. B. Tibbels.....	J. P. Johnson, B. S.
Almena.....	L. R. Switzer, A. B.....	Alice Duloherly.
Alt Vista.....	L. B. Burt.....	Annie Crouch.
Americus.....		Roy H. Thompson.
Barnard.....		Ellwood Course, A. B.
Beattie.....	C. Kraemer.....	Elnora Stevenson.
Belpre.....	C. M. Rankin.	
Blue Mound.....	M. Ellen Dingus, B. S.....	J. D. Bower, A. B.
Brookville.....	T. J. Rollman.....	Winifred Martin.
Bucklin.....	F. L. Wright, A. B.....	Mrs. Wright.
Bunker Hill.....	J. C. Reed, B. S.	
Burns.....	C. E. Ames, A. M.....	Fannie M. Hare.
Canton.....	J. J. Yoder.....	Emma Maughlin, A. B.
Carbondale.....	E. L. Heilmann.....	Marian R. Alt, A. B.
Cawker City.....	Euna M. Arrasmith, A. B..	Etta L. Arrasmith, B. Ped.
Centralia.....	G. E. Whitecraft.....	Beth Kennedy.
Cheyenne County, St. Francis.....		E. P. Curtis, B. Pd.
Clearwater.....	R. M. Crum, B. Ped.....	Nannie Davis.
Clifton.....	J. E. Watson, A. B.....	Nannette Coe, A. B.
Colony.....	M. C. Hume, A. B.....	Zelda M. Rice, A. B.
Conway Springs.....	J. Van Arsdale, A. B.....	Cassie F. Jones, A. M.
Coolidge.....	J. H. Conard.....	Lucy Wright, A. B.
Cunningham.....	J. W. Wilson.....	Correa Walter.
Delphos.....	H. W. Felter.....	Margaret E. Johnston, A. B.
Derby.....	S. R. Braden, A. B.	
Dixon Township, Argonia.....		A. M. Herron.
Downs.....	T. M. McDonald, B. S.....	Alice B. Ray.
Easton.....	E. Voorhees.	
Edwardsville.....	George D. Rathbun.	
Ellinwood.....	H. E. Powers.....	Helen A. Minnis.
Elsmore.....	Chas. R. Braden, Ph. C.....	Alta M. Evans.
Elwood.....	B. G. Thayer.....	Florence Lawson.
Enterprise.....	O. L. Coleman, A. B.....	Agnes Ekblad, A. B.
Erie.....	George A. Allen, jr.....	Beatrice Brown.
Eudora.....	Chas. Kelly.....	Myrnice Cryslers, A. B.
Fairview.....	Lionel A. Anderson, A. B..	Harriet Hartford, A. B.
Glasco.....		L. M. Duvall, B. S.
Glen Elder.....	R. L. Hamilton.....	Gertrude Walters, A. B.
Gray County, Cimarron.....		M. G. Cleary.
Greenleaf.....	Walter A. Hooper, B. S....	Clara L. Coith.
Gypsum.....	C. E. Tilford.....	Etta Coover.
Harveyville.....	F. I. Hinshaw.....	Pearl Cundiff.
Havensville.....	Frank Broom.....	Anna Graham.
Hesston Academy.....	D. H. Bender.	
Hill City.....	John C. Myrick.....	Nina Hunsberger.
Hillsboro.....	Augusta H. Ponath, A. M..	Ada L. Richardson.
Irving.....	V. E. Worley, Pd. B.....	Florella Counts, A. B.
Kincaid.....	Verne McGuffey.....	Esther Dunn.
Kiowa County, Greensburg.....		N. F. Daum, A. M.
La Crosse.....		Ray Heritage, A. B.
Lane County, Dighton.....		E. E. Colyer, A. B.



<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Lansing.....	Ira J. Bright.....	C. G. Maier.
Latham.....	E. F. Farner, A. B.	
Lebo.....	B. F. Sinclair, A. B.....	Blanche P. Peters.
Lewis.....	L. S. Minckley, A. M.	
Liberal.....	F. O. Rindon.....	Edith Gamber.
Logan.....	R. G. Hepworth.....	Arietta Van Ness, A. B.
Lost Springs.....	George E. Freeland, A. B.	
Lucas.....	Mrs. Lela Beeghley, A. B.	
Lyndon.....	Thos. J. Carder.....	Mary H. Kirby.
Maplehill.....	F. D. Miller.....	Helen E. Scott, A. B.
McLouth.....	F. M. Chapman, A. B.	
Meriden.....	W. G. Rees.....	Mary B. Maughlin, A. B.
Moline.....	L. P. Breeden, A. B.....	G. L. Miller.
Moundridge.....	August R. Krehbiel, A. M.	
Mound City.....	V. E. Postma.....	Pauline Madden, A. B.
Mt. Hope.....	W. L. Baker.....	Lottie Phillips.
Mulvane.....	W. E. Evans.....	Elizabeth Emery.
Natoma.....	W. A. Hendershot, B. S.	
Neosho Falls.....	A. L. Cross.....	Eunice Pleasant.
Ness City.....	J. E. Cook, A. B.	
Nortonville.....	Fred Thompson.....	Pearl Fisher, B. L.
Norwich.....	F. S. Hagy, B. S.	
Overbrook.....	I. F. Richardson, LL. B.....	Eva Jamison, B. L.
Perry.....	Wm. Erdman, A. B.....	Edward Van der Vries.
Phillipsburg.....	Elmer Ahlstedt, A. B.....	Olive L. Thomas.
Portis.....	L. F. Metzler.....	Mabel Nixon.
Rawlins County.		
Atwood.....		C. E. Cannon.
Reading.....	Ida L. Booth, A. B.....	Lucy E. Hall.
Redfield.....		Grace Bixler.
Savonburg.....	L. G. French.....	Buelah Chalmers, A. B.
Scott County.		
Scott.....		L. S. Runnels.
Seranton.....	W. J. Betts, Ph. B.....	Bertha M. Rightmire, A. B.
Severy.....	Ernest Z. Bennett.....	Mary Service.
Spearville.....	B. A. Pratt.....	H. C. Coffman.
Spivey.....	Grace T. Bayless, B. L.	
St. Marys.....	J. M. Evans, A. B.....	Ida K. Moriarty.
Summerfield.....	Frank M. McClelland, A. B.	
Syracuse.....	H. E. Walter, A. B.....	Effie Markwell.
Udall.....		George D. Biggs.
Valley Center.....	J. S. Carson, A. M.	
Walden Academy.		
McPherson.....	D. V. Brunstrom, A. M.....	Charles Hjerpe, A. M.
Waverly.....	Chas. A. Kalb, A. B.....	Ernest Shank, A. B.
Wellsville.....	Etta J. McCoy.....	Lillian Haines, Ph. B.
Westmoreland.....	George T. Coddling.....	Nellie McClure, Ph. B.
White City.....	Thomas Miller, B. S.....	Rae Wiltrout, B. L.
White Cloud.....	C. G. Landrum, A. B.....	Minnie Pence.
Wichita County.		
Leoti.....		F. E. Robinson, B. S.
Williamsburg.....		N. S. Welton.
Wilson.....	H. Coover.....	Mary Thomas.
Winchester.....	B. F. Green, A. B.	

## CLASS III.

Schools listed in class III offer courses that have been approved by the University, but other conditions for accredited relations have not been fulfilled. These schools are working toward accredited relations.

*School and Principal.*  
 Admire, George L. Noce.  
 Atlanta, Willis C. Perry.  
 Baldwin, O. J. Lane, LL. B.  
 Beverly, J. A. Feather.  
 Buffalo, Bert Hensley, A. B.

*School and Principal.*  
 Lecompton, Fred Barrell.  
 Macksville, J. A. Kell, A. B.  
 Maize, J. V. Colville, B. S.  
 McCune, J. F. Lyon.  
 Meade, L. L. Comfort.

<i>Name of school.</i>	<i>Superintendent.</i>	<i>Principal.</i>
Burr Oak, F. Eaton, B. S.		Miltonvale, Silas W. Bond, A. M.
Chase, J. B. Tucker.		Muscotah, R. P. Wilson.
Corning, W. R. Anthony.		Neosho Rapids, J. B. Fridley.
Edgerton, O. W. Brown, A. B.		Netawaka, Ruby O. Foulk, A. B.
Esbon, E. D. MacDougall, A. B.		Republic, Roy S. McCulloch.
Everest, J. B. Hitt, B. S.		Richmond, Ira L. McKinley, A. B.
Gardner, Edw. C. Paxton, A. B.		Scottsville, B. B. Shore, A. M.
Geneseo, S. O. Perkins.		Sylvan Grove, Geo. H. Hower, B. Ped.
Goddard, Chas. M. Fifer.		Thayer, Theron Freese.
Goff City, W. A. Cain.		Vermillion, Murray Wallace.
Haddam, Edward Rooney.		Viola, Le Roy L. Kauffman, A. B.
Hope, Aubrey E. Davidson.		Weir, Frank H. Rose.
Lakin, George L. Hensley.		

**PART V.**

**Degrees Conferred and Lists of  
Students.**

(437)





# DEGREES CONFERRED.

JUNE, 1910.

## DOCTOR OF PHILOSOPHY.

Fred W. Faragher, . . . . .	Sabetha.
Arthur Bowes Frizell, . . . . .	Lawrence.
Robert Spencer Pond, . . . . .	Topeka.

## CIVIL ENGINEER.

Dudley Frank Black, . . . . .	Huntley, Montana.
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## MASTER OF SCIENCE.

Bert Charles Frichot, . . . . .	Leavenworth.
Thomas Powell Haslam, . . . . .	Council Grove.

## MASTER OF ARTS.

Cecil Erwin Ames, . . . . .	Lawrence.
Jean Neville Campbell, . . . . .	Topeka.
James Homer Clement, . . . . .	Anthony.
John Addison Clement, . . . . .	McPherson.
Ward Hance Cook, . . . . .	Kansas City, Mo.
Richard Leroy Douglas, . . . . .	Crestline.
Bartel Edward Ebel, . . . . .	McPherson.
Edward Thomas Gibson, . . . . .	Kansas City.
John Ambrose Hess, . . . . .	Lawrence.
Chester Henry Heuser, . . . . .	Fort Scott.
Harvey Blaine Hoffman, . . . . .	Abilene.
Gertrude Agnes Kenny, . . . . .	Lawrence.
Ray Duncan Lindsey, . . . . .	Cherryvale.
Joseph Clifford Morgan, . . . . .	Hutchinson.
Clarence Adelbert Nash, . . . . .	Lawrence.
Mary Edyth Pinney, . . . . .	Wilson.
Elizabeth Witchurch Roberts, . . . . .	Benedict.
Babetta Stadler, . . . . .	Topeka.
Amida Stanton, . . . . .	Lawrence.
Selma Alma Stempel, . . . . .	Ft. Madison, Ia.
Bessie German Trovillo, . . . . .	Abingdon, Ill.
Clarence Othell Van Dyke, . . . . .	Woodston.
Edward Ray Weidlein, . . . . .	Augusta.

## BACHELOR OF ARTS.

Hazel Allison,* . . . . .	Clay Center.
Paul Vivian Annadown, . . . . .	Baldwin.
Otto Apollo, . . . . .	Fredonia.
Edna Eloise Austin,* . . . . .	Lawrence.
Jessie Baldridge,** . . . . .	La Junta, Colo.
Minnie Oba Ballou,** . . . . .	Lawrence.
Edward Cleveland Banker, . . . . .	Overbrook.
Charles Leon Barkdull, . . . . .	Lawrence.
John Firmen Barnhill,* . . . . .	Paola.
Martha Bartels, . . . . .	Inman.
Isabel Barton,* . . . . .	Kansas City, Mo.
Mary Lenore Bass, . . . . .	McPherson.

\* Also receives University Teachers' Diploma.

\*\* Assigned to the class of 1909.

BACHELOR OF ARTS—*continued.*

Edwin A. Baumgartner, . . . . .	Newton.
Archie H. Beard, . . . . .	Pittsburg.
Grace Davida Bedell, . . . . .	Iola.
Margaret Holmes Beerbohm,* . . . . .	Topeka.
Eva Charlotte Bernhard,* . . . . .	Lawrence.
Hazel Norris Berry, . . . . .	Waterville.
Roy Egbert Billings, . . . . .	Cherryvale.
James Edward Bond, . . . . .	Lawrence.
Milton August Bosse, . . . . .	Ellinwood.
Vincent Volta Bossi,** . . . . .	Arkansas City.
Madge Boyd, . . . . .	Kansas City, Mo.
Leo Brent Bozell, . . . . .	Beloit.
Maurice L. Breidenthal, . . . . .	Kansas City.
Maude Browne, . . . . .	Kansas City, Mo.
Mamie Bryant, . . . . .	Edmond, Okla.
Alice H. Bunz, . . . . .	Kansas City.
Ivan Roy Burket, . . . . .	Wetmore.
Nellie Burnham,* . . . . .	Lawrence.
Moneta Birdie Butts, . . . . .	Wichita.
Harry Joseph Campbell, . . . . .	Liberty, Mo.
Hattie Elizabeth Case,* . . . . .	Arkansas City.
Estella Christian, . . . . .	Kansas City.
Erminie Ethel Clarke,* . . . . .	Lawrence.
Clifford Cole, . . . . .	Kansas City, Mo.
Judith Mary Connelly, . . . . .	Kansas City, Mo.
Clara Lillian Converse, . . . . .	Ottawa.
Charles Edwin Cooley, . . . . .	Kansas City.
Ivy Eliza Craig,* . . . . .	Kansas City.
Edmund Dresser Cressman,* . . . . .	Lawrence.
Alberta Bissell Cresswell,* . . . . .	Kansas City, Mo.
Stella Jessie Dallas, . . . . .	Topeka.
Imogen Curtiss Dean, . . . . .	Marion.
John Wesley Demand, . . . . .	Chapman.
Milton Henry Demand, . . . . .	Chapman.
Roy Kaiser Dietrich, . . . . .	Kansas City, Mo.
Henry Alfred Dodderidge, . . . . .	White City.
Richard Leroy Douglas, . . . . .	Crestline.
Edith Earl, . . . . .	Newton.
William Augustus Erdman, . . . . .	Lawrence.
Agnes Louise Evans, . . . . .	Lawrence.
Hattie Fenner, . . . . .	Humboldt.
Guy Finney, . . . . .	Wamego.
Roland Cecil Fay,** . . . . .	Olathe.
William T. Fitzsimons, . . . . .	Kansas City, Mo.
Katherine May Flynn, . . . . .	Carbondale, Colo.
Cory Keene Fones,* . . . . .	Lyons.
Margaret McCreery Fort, . . . . .	Kansas City, Mo.
Howard Vanton Foulk, . . . . .	Arkansas City.
Elsbeth Sophia Frey, . . . . .	Enterprise.
Jonathan Fred Froelich, . . . . .	Enterprise.
Edna May Gafford, . . . . .	Minneapolis.
James Finney Gilliland,* . . . . .	Sterling.
Eleanor Margaret Gilmore, . . . . .	Lawrence.
Helen Gleissner, . . . . .	Abilene.
Olive Glenn,* . . . . .	Paola.
Harry W. Goudy, . . . . .	Beloit.
Helen Graham, . . . . .	Holton.
Amy Maria Green,* . . . . .	Kansas City.
Lyman Curtis Guise, . . . . .	Oneida.
Grace I. Gwinner, . . . . .	Dodge City.
Florentine Hackbush, . . . . .	Leavenworth.
Edith Elizabeth Hague,* . . . . .	Lawrence.
G. Dallas Hanna,** . . . . .	Kansas City.
Paul Winter Harvey, . . . . .	Columbus.
Ralph G. Hemenway, . . . . .	Emporia.
Wilber Abram Hobbs, . . . . .	Lawrence.
Pearl E. Hollingsworth, . . . . .	Lawrence.
Edna Pierson Hopkins, . . . . .	Topeka.
William Manly Huff,* . . . . .	Chapman.

BACHELOR OF ARTS—*continued.*

Blanche Edith Hull, . . . . .	Lawrence.
Letha Hurst,* . . . . .	Garden City.
Edna Marie Hyre,* . . . . .	Lawrence.
Hulda Lucile Ise, . . . . .	Lawrence.
John E. Ise, . . . . .	Lawrence.
Ruth Jameyson, . . . . .	<i>La Junta, Colo.</i>
Mary Helen Johnston, . . . . .	Lawrence.
Mary Alice Jones, . . . . .	Emporia.
Norman Kiefer, . . . . .	Lawrence.
Pearl Lasley, . . . . .	Kansas City.
Thomas Amory Lee, . . . . .	Topeka.
Paul Mateer Lobaugh, . . . . .	Harper.
Margaret Edna Lupton, . . . . .	Hoxie.
Orlean Edgar Markham, . . . . .	Washington.
Helen Hamilton Martin,* . . . . .	Kansas City.
Donald Cameron Martindell, . . . . .	Eureka.
Ralph H. Middlekauff, . . . . .	Wichita.
Grace L. Miller,* . . . . .	El Dorado.
Howard Preston Miller, . . . . .	Perry.
J. Earll Miller, . . . . .	Marysville.
Zella Mitchell,* . . . . .	Wellington.
Virgil Holland Moon, . . . . .	Wichita.
Warren Ralph Morton, . . . . .	Green.
Minnette Smith Mundell, . . . . .	Hutchinson.
Edith Sarah Myers, . . . . .	Lawrence.
Anna Elizabeth McCoy, . . . . .	Hiawatha.
Jessie Lee McElfresh,* . . . . .	Osage City.
Anna Hazel McKay, . . . . .	Girard.
Paul Pierre McNeely, . . . . .	Cedarvale.
Dora McNutt, . . . . .	Eureka.
Claire Marie Nelson, . . . . .	Leavenworth.
Ben Harry Nicolet, . . . . .	<i>Kansas City, Mo.</i>
Helen Alletta Nolder, . . . . .	Newton.
Boris J. Patchedjief, . . . . .	<i>Sophia, Bulgaria.</i>
Arthur S. Peck, . . . . .	Garnett.
Lillian Pearl Perkins,* . . . . .	Lawrence.
Rollin M. Perkins, . . . . .	Lawrence.
Edna Anna Poe, . . . . .	Lawrence.
Ross William Potwin,* . . . . .	Lyons.
May T. Powell,* . . . . .	Leavenworth.
Teressa Clara Radell,** . . . . .	Pittsburg.
Juanita Gertrude Rankin, . . . . .	<i>Albuquerque, N. M.</i>
Bessie Mabel Rarig, . . . . .	Minneapolis.
Elizabeth Witchurch Roberts, . . . . .	Benedict.
Flavel Robertson, . . . . .	<i>Kansas City, Mo.</i>
Clifford Fry Royer,** . . . . .	Abilene.
Helen Ermina Sawtell,* . . . . .	Junction City.
Edward Reynolds Schaufler, . . . . .	<i>Kansas City, Mo.</i>
Minta Schmitz, . . . . .	Paola.
Helen Elizabeth Scott, . . . . .	Leavenworth.
Susie Shaffer, . . . . .	Hays.
Mary Pauline Shaner,* . . . . .	<i>Chicago, Ill.</i>
T. Theodore Shannon, . . . . .	Mound City.
Laurenia Mervine Shaw, . . . . .	Lawrence.
John Penfield Shea, . . . . .	Lawrence.
Viola Florence Shefler,** . . . . .	Linwood.
Clay Bride Shinn, . . . . .	Ottawa.
Emma Maria Shreve,* . . . . .	Atchison.
David Guy Siceloff, . . . . .	Wellington.
Elsie Slade, . . . . .	Clay Center.
Clara Gertrude Smith,* . . . . .	<i>Cameron, Mo.</i>
Dot Smith,* . . . . .	Sterling.
Katharine O'Donnell Smith, . . . . .	Stockton.
Mary Alice Smith,* . . . . .	Lawrence.
Ralph Hall Spotts, . . . . .	Abilene.
Elizabeth Stephens, . . . . .	Lawrence.
William Abbott Steward, . . . . .	Columbus.
Martha Stough,* . . . . .	Arkansas City.
William Lester Stryker, . . . . .	Fredonia.
Pearl Mabelle Stuckey, . . . . .	Formoso.

## BACHELOR OF ARTS—concluded.

Edna Pearl Teeter, . . . . .	Lawrence.
Grace Elizabeth Thestrup,* . . . . .	Williamsburg.
Herbert Thompson, . . . . .	Lawrence.
Clarence L. Waring, . . . . .	Abilene.
Henry Clay Waters, . . . . .	Galena.
Joseph Sylvester Wenger, . . . . .	Russell.
Homer Vernon Wilburn, . . . . .	Independence.
Walter Bailey Wise, . . . . .	Colony.
Paul Reinhard Wohler, . . . . .	Chanute.
Earl Cool Woodward, . . . . .	Glasco.
Clifford C. Young, . . . . .	Lawrence.
Blanche Anna Zurcher,* . . . . .	Newton.

## BACHELOR OF SCIENCE.

D. Stanley Adams, . . . . .	<i>Kansas City, Mo.</i>
Robert Frederic Aspinall, . . . . .	Iola.
Walter Bohnstengel, . . . . .	Dodge City.
Cleveland Bowser, . . . . .	Columbus.
John Moor: Brentlinger, . . . . .	Columbus.
Clare Maynard Brigham, . . . . .	Belleville.
William Arthur Burkholder, . . . . .	McPherson.
Ansel Morris Burton, . . . . .	Neodesha.
Benjamin A. Card, . . . . .	Scott.
Samuel Grove Dolman, . . . . .	Topeka.
Walter Ernest Edmonds, . . . . .	Lawrence.
William Edwin Emmett, . . . . .	Lawrence.
Fred Postlewait Fairchild, . . . . .	Topeka.
Elbert Farber, . . . . .	Hoxie.
Vernon S. Foster, . . . . .	Fort Scott.
John Diller Garver, . . . . .	Topeka.
John Porter Hart, . . . . .	Overbrook.
Arthur Harvey, . . . . .	Salina.
Fred Reeder Hesser, . . . . .	Beloit.
Horace Wright Hollingsworth, . . . . .	Leavenworth.
Homer Hunter, . . . . .	Mitchell.
Albert Frederick Jontz, . . . . .	Abilene.
William Dennis Kenny, . . . . .	Lawrence.
Albert Preisach Learned, . . . . .	Lawrence.
Cyrus Austin Leland, . . . . .	El Dorado.
Frank Austin Love, jr., . . . . .	Arkansas City.
Herbert Lawrence Luther, . . . . .	Lawrence.
George Miles March, . . . . .	Lawrence.
Vanroy William Miller, . . . . .	Lawrence.
Glen S. Morris, . . . . .	Eureka.
Cyrus Morrow, . . . . .	Blue Rapids.
Curtis J. McCoy, . . . . .	Hiawatha.
Harry Hemphill McCully, . . . . .	<i>Oil City, Calif.</i>
Paul McGeehan, . . . . .	<i>Kansas City, Mo.</i>
George Alfred Neal, jr., . . . . .	Lawrence.
Paul R. Parmelee, . . . . .	Topeka.
Boris J. Patchedjief, . . . . .	<i>Sophia, Bulgaria.</i>
Roscoe Ponsler, . . . . .	Iola.
Victor Earl Rockefeller, . . . . .	Holton.
Herman A. Ruth, . . . . .	Moundridge.
Dan Fulton Servey, . . . . .	Iola.
Carl Sherman, . . . . .	Crawford.
Lloyd Lawrence Stanley, . . . . .	Lawrence.
Arnot R. Stevenson, . . . . .	Belleville.
A. Clayton Swiggett, . . . . .	Wichita.
Harry James Taylor, . . . . .	Larned.
Clifford Arthur Templeton, . . . . .	Esbon.
Ralph Burgess Thomas, . . . . .	Lawrence.
Lester Carl Walker, . . . . .	Mankato.
Ray Wick, . . . . .	Detroit.
John Fay Wilson, . . . . .	Winfield.
Fred Hill Winter, . . . . .	Lecompton.



## BACHELOR OF MUSIC.

Kate May Caldwell, . . . . .	Lawrence.
Gertrude Helen Cooper, . . . . .	Peabody.
Louella Otwell Dalton, . . . . .	Lawrence.
Sophia Davies, . . . . .	Lebo.
Lydia Marshall, . . . . .	Lincoln.
Kate Hart, . . . . .	Fort Scott.
Henrietta Oshant, . . . . .	Hays.
Effie Williams, . . . . .	Hutchinson.
Amy Emma Wolfe, . . . . .	Frankfort.

## CERTIFICATE IN EXPRESSION.

Pattie Hiatt, . . . . .	Lawrence.
Lillian Helen Kirchhoff, . . . . .	Lawrence.
Jennie Corita Purdy, . . . . .	Chanute.
Winifred Van Vliet, . . . . .	Frankfort.
Grace Dixon Waugh, . . . . .	Eskridge.
Mary Elizabeth Yeater, . . . . .	Osawatomie

## BACHELOR OF LAWS.

Frederick Gazlay Apt, . . . . .	Iola.
Harold Marks Armsby, . . . . .	Council Grove.
Gordon Badger, . . . . .	Eureka.
Paul B. Bailey, . . . . .	Troy.
Edgar Rankin Barnes,**	Blue Mound.
Orla Ray Baum, . . . . .	Phillipsburg.
Frederick Willis Bayless,	Lawrence.
Bernard Howard Bennett,	Nashville.
Benjamin Franklin Bowers,**	Centropolis.
James Abraham Cassler, . . . . .	Canton.
William Byron Chaplin,	Emporia.
F. Keith Clevenger,**	Osawatomie.
Foster Cline, . . . . .	Roanoke.
Ward Henry Coble, . . . . .	Kansas City, Mo.
Homer J. Conley, . . . . .	Oklahoma City, Okla.
A. Mills Ebright, . . . . .	Sterling.
Frank Henry Ford, . . . . .	Lawrence.
Edgar M. Forde, jr., . . . . .	Emporia.
Charles Edgar George, . . . . .	Lawrence.
Charles M. Gilmore, . . . . .	Lawrence.
Guy T. Griffiths, . . . . .	Lawrence.
Elmer Roy Heaton, . . . . .	Wichita.
Lee Jackson,**	Barnard.
Steen M. Johnson, . . . . .	Atwood.
Ben L. Jones, . . . . .	Coffeyville.
Frank Kenny, . . . . .	Lawrence.
Samuel Leonard Lashbrook,**	Washington.
Alfred T. Lewellen, . . . . .	Chetopa.
Carroll Judd Lord, . . . . .	Dodge City.
Benjamin Harrison Matkins, . . . . .	Lawrence.
Donald Everett McCrory, . . . . .	Emporia.
Vale L. Nance, . . . . .	Kansas City, Mo.
George Roy Norris, . . . . .	Burdett.
John Riling, . . . . .	Lawrence.
John Robertson, . . . . .	Lawrence.
Arthur Vogus Roberts,**	Redkey, Ind.
Harry Leslie Rogers, . . . . .	Pittsburg.
Lucien Baker Rutherford, . . . . .	Leavenworth.
Arthur Hugh Seddon, . . . . .	Kansas City, Mo.
John T. Smith, . . . . .	Sedan.
Irwin Snattinger, . . . . .	Topeka.
Adolph James Spangler, . . . . .	Lawrence.
Harvey Starbuck, . . . . .	Plainville.
Albert Stavely, . . . . .	Lyndon.
Fred Taylor, . . . . .	Lawrence.
Olive Elmer Thomas, . . . . .	Watonga, Okla.

## BACHELOR OF LAWS—concluded.

Theodore Waage, . . . . .	Le Roy.
George D. Wall, . . . . .	Lawrence.
Z. Wetmore, . . . . .	Wichita.
Max R. Wiley, . . . . .	Lawrence.

## BACHELOR OF SCIENCE IN PHARMACY.

## FOUR-YEAR COURSE.

James Valentine Adams, . . . . .	Hutchinson.
Arthur Garfield Mall, . . . . .	Clay Center.
David Warren Morris, . . . . .	Emporia.
Thomas Cornelius Ross, . . . . .	Olathe.

## PHARMACEUTICAL CHEMIST.

## THREE-YEAR COURSE.

Clyde G. Coe, . . . . .	Lawrence.
Edwin Jud Housel, . . . . .	Kincaid.
Samuel Houston Nite, . . . . .	Eminence.
Leoni Cloyde Runyan, . . . . .	La Harpe.

## TWO-YEAR COURSE.

Clay Alder, . . . . .	Athol.
Stanley Arthur Bottomley, . . . . .	Oakhill.
Wilmer Amurma Campbell, . . . . .	Topeka.
John Gerken, . . . . .	Lawrence.
Henry Haist, . . . . .	Holton.
James Adrian Kelley, . . . . .	Kinsley.
Harry M. Kirkham, . . . . .	Alva, Okla.
Curtis John Patterson, . . . . .	Oskaloosa.
Ray Presley Rankin, . . . . .	Wakefield.
Sidney Mark Rogers, . . . . .	Lawrence.
Roy Raymond Shoaf, . . . . .	Topeka.
Roy William Webb, . . . . .	St. Joseph, Mo.
Frank C. Wood, . . . . .	Meade.
Richard O. Zeman, . . . . .	Wilson.

## DOCTOR OF MEDICINE.

Louie John Beyer, . . . . .	Inman.
Arthur Justice Boren, . . . . .	Winfield.
John Basil Carter, . . . . .	Howard.
Earl Finley Clark, . . . . .	Overbrook.
Francis Leander Elias, . . . . .	Manhattan.
Edwin Grant Ganoung, . . . . .	Cawker City.
Oliver S. Gilliland, . . . . .	Kansas City, Mo.
Henry Finlay Hyndman, . . . . .	Lawrence.
Charlotte Kaulbach, . . . . .	Kansas City.
Mortimer Marder, . . . . .	Kansas City.
William Ernest Michener, . . . . .	Beloit.
Earl George Padfield, . . . . .	Hutchinson.
William Robert Palmer, . . . . .	Fall River.
Fred Gerald Poutre, . . . . .	Greenleaf.
Edward S. Ruth, . . . . .	Moundridge.
Charles Arthur Siler, . . . . .	Lawrence.
Raymond Edwin Teall, . . . . .	Oberlin.
Pinkney Townsend, . . . . .	Edna.
Julius John Tretbar, . . . . .	Hudson.
Carter William Ward, . . . . .	Hudson.

## CERTIFICATE FOR GRADUATE NURSES IN MEDICINE AND SURGERY.

M. Claire Bowen, . . . . .	Lawrence.
Mattie Flater, . . . . .	Hepler.
Edith Tuttle, . . . . .	Lyons.

# ROLL OF STUDENTS.

## Graduate School.

\* Seniors, College or Engineering, who have completed sufficient work for the A. B. or B. S. degree and are doing graduate work.

† Also in Summer Session.

Anderson,† Agnes A., A. B. '09, Baker University, <i>Chemistry, Botany</i> , . . . . .	Baldwin.
Anderson, Finis, A. B. Scarrett College, M. D. University of Kansas, <i>Bacteriology</i> , . . . . .	Kansas City.
Aschmann, Theodore H., A. B. '08, McPherson College, <i>Anatomy, Physiology</i> , . . . . .	Inman.
Bach,† Emma, '09, Bern, <i>German, French</i> , . . . . .	Hutchinson.
Bailey, Gordon A., A. B. '10, Southwestern College, <i>History, Political Science</i> , . . . . .	Winfield.
Bailey,* Reginald K., A. B. '11, University of Kansas, <i>Chemistry</i> , . . . . .	Lawrence.
Baird,*† Charles G., A. B. '11, University of Kansas, <i>English, Philosophy</i> , . . . . .	Lawrence.
Barber, Marshall A., Ph. D. '07, Harvard, <i>Pathology</i> , . . . . .	Lawrence.
Batley,† Lita, A. B. '06, University of Kansas, <i>English</i> , . . . . .	Powhattan.
Baumgartner, Edwin A., A. B. '10, University of Kansas, <i>Zoölogy</i> , . . . . .	Newton.
Bell,† Alice K., A. B. '09, Ottawa University, <i>Education</i> , . . . . .	Ottawa.
Bernhard, Lillie, A. B. '07, University of Kansas, <i>German, English</i> , . . . . .	Lawrence.
Blair, G. Bruce, A. B. '02, Tabor College, <i>Mathematics</i> , . . . . .	Topeka.
Blair, J. Will, A. B. '00, Tabor College, <i>English</i> , . . . . .	Topeka.
Boethius, Jacob E., A. B. '10, Bethany College, <i>German</i> , . . . . .	Lindsborg.
Bohnstengel, Walter, B. S. '10, University of Kansas, <i>Mechanical Engineering</i> , . . . . .	Dodge City.
Booth,† Ida L., A. B. '07, Baker, <i>English Literature, Latin</i> , . . . . .	Reading.
Bond, James, A. B. '10, University of Kansas, <i>Sociology, Economics</i> , . . . . .	Lawrence.
Breidenthal,† Maurice L., A. B. '10, University of Kansas, <i>Entomology</i> , . . . . .	Kansas City.
Brock,† Ivy Grace, A. B. '07, University of Kansas, <i>History, German</i> , . . . . .	Lawrence.
Briggs,* Ruby I., A. B. '11, University of Kansas, <i>English</i> , . . . . .	Lawrence.
Broderson, Henry J., A. B. '09, University of Nebraska, <i>Chemistry</i> , . . . . .	Lawrence.
Burket, Ivan R., A. B. '10, University of Kansas, <i>Physiology</i> , . . . . .	Wetmore.

- Bush,\* Lee M., B. S. '11, University of Kansas,  
*Mechanical Engineering*, . . . . . Burlingame.
- Campbell, J. Watson, A. B. '09, University of  
Kansas, *Anatomy, Physiology*, . . . . . Attica.
- Chesky, Edward, A. B. '11, University of Kansas,  
*History*, . . . . . Nickerson.
- Chesky,† Victor E., A. B. '09, University of Kan-  
sas, *Botany*, . . . . . Nickerson.
- Clark,\* Zoe, A. B. '11, University of Kansas,  
*Romance Languages*, . . . . . Ottawa.
- Clarke,† Alice Mary, Ph. D. '08, Baker, *Latin*, . . . . . Seneca.
- Clawson,† Ben. J., B. S., Central Holiness Uni-  
versity, *Botany, Chemistry*, . . . . . Oskaloosa, Iowa.
- Clement,† James H., A. B. '08, McPherson Col-  
lege, *Education*, . . . . . Lawrence.
- Cook, Ward Hance, A. B. '09, A. M. '10, Uni-  
versity of Kansas, *Zoölogy*, . . . . . Lawrence.
- Coe,† John Edwin, A. B. '05, Emporia College,  
*Chemistry, Botany*, . . . . . Dodge City.
- Collins,† Annie, A. B. '09, McPherson College,  
*Latin*, . . . . . McPherson.
- Cressman,† Edmund D., A. B. '10, University of  
Kansas, *Latin*, . . . . . Lawrence.
- Dahlene,\* Oscar, B. S. '11, University of Kansas,  
*Mechanical Engineering*, . . . . . Lawrence.
- Dalke, Diedrich, A. B. '10, McPherson College,  
*Sociology, Education*, . . . . . Lawrence.
- Dershem,† Elsie, A. B., '08, Baker University,  
*English, Philosophy*, . . . . . Baldwin.
- Dillard,† Mary, A. B. '96, University of Kansas,  
*English Literature*, . . . . . Lawrence.
- Dodge, Faye, A. B., Friends University, *Sociol-  
ogy*, . . . . . Wichita.
- Dolbee,† Cora, A. B. '08, University of Kansas,  
*English*, . . . . . Salina.
- Draper,\* May L., A. B. '11, University of Kan-  
sas, *Latin*, . . . . . Lawrence.
- Dreier,† Albert A., A. B. '08, Midland College,  
*Mathematics*, . . . . . Randolph.
- Eidson, Lambert, A. B. '08, Emporia College,  
*Sociology, Economics*, . . . . . Lawrence.
- Fowler, Lillian E., B. S. '04, Ottawa University,  
*Physiology, Bacteriology*, . . . . . Lawrence.
- Fraser, Roy, A. B. '10, Toronto, *Entomology*,  
*Botany*, . . . . . Galetta, Ontario, Canada.
- Gardner, Harry, B. S. '05, University of Wis-  
consin, *Chemistry, Engineering*, . . . . . Lawrence.
- Gibbon,† William O., Ph. B. '08, Baker, *Botany*, . . . . . Halstead.
- Gill, Mabel Ruth, A. B. '09, University of Kan-  
sas, *Latin, English*, . . . . . Clyde.
- Gray, Charles J., A. B. '05, Muskingum, *His-  
tory, Political Science*, . . . . . Sterling.
- Green,\* Wyman R., A. B. '11, University of Kan-  
sas, *Zoölogy*, . . . . . Mutual, Okla.
- Gunthorp,† Horace, A. B., Kansas City Univer-  
sity, *Biology*, . . . . . Winfield.
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Brook, Bessie Cable, . . . . .	Lawrence.
Brown, Helen E., . . . . .	Delphos.
Brumage, Everett, . . . . .	Beloit.
Burdick, Helen, . . . . .	Lawrence.
Butler, Walter Albert, . . . . .	Bird City.
Butts, Hazel Ida, . . . . .	Wichita.
Buzick, Alonson Ruchman, . . . . .	Lawrence.
Calene, Leona Camilla, . . . . .	Sylvan Grove.
Calhoun, Carrie May, . . . . .	Fort Scott.
Cannon, Carl Leslie, . . . . .	Smith Center.
Carmichael, Fay, . . . . .	Lawrence.
Carmichael, Madge, . . . . .	Lawrence.
Carpenter, Weston William, . . . . .	Lawrence.
Carter, Ledrue Garld, . . . . .	Lawrence.
Cole, Alma Blanche, . . . . .	Lawrence.
Colin, Edward Cecil, . . . . .	Argonia.
Conner, David Ewing, . . . . .	Lawrence.
Crawford, Villa, . . . . .	Enid, Okla.
Cullison, Walter V., . . . . .	Mulberry.
Curtiss, Bessie Irene, . . . . .	Lawrence.
Curtis, Paul Everard, . . . . .	Lawrence.
Dack, Bertha Louise, . . . . .	Lyons.
Dalke, Mrs. Anna Graber, . . . . .	Lawrence.
Dalton, Nellie Marvin, . . . . .	Lawrence.
Danskin, Floyd Brown, . . . . .	Aulne.
David, M. Christina, . . . . .	Bonner Springs.
Davidson, Ellis Webb, . . . . .	Lawrence.
Davis, Don Louis, . . . . .	Kansas City.
Davis, Frank E., . . . . .	Lawrence.
Dees, Frederick, jr., . . . . .	Abilene.
Degen, Esther, . . . . .	Hoisington.
Dittmar, Elmer H., . . . . .	Clay Center.
Dolbee, Myrtle Elizabeth, . . . . .	Lawrence.
Dolman, Katherine, . . . . .	Lawrence.
Draper, Mary Eleanor, . . . . .	Oswego.
Earnest, Clarence, . . . . .	Washington.
Eastman, Walter Maynard, . . . . .	Lawrence.
Elliott, Gladys Elizabeth, . . . . .	Lawrence.
Elliott, Harry Houlette, . . . . .	Lawrence.
Ellis, Dena Hope, . . . . .	Lawrence.
Ellis, Frances Maud, . . . . .	El Dorado.
Ellis, Katherine, . . . . .	Pratt.
Emery, George Valentine, . . . . .	Wetmore.
Emery, Solon Thacher, . . . . .	Lawrence.
Ewald, Paul Peter, . . . . .	Lawrence.
Fairchild, Chas. Clement, . . . . .	Lawrence.
Farnsworth, Chester George, . . . . .	Wichita.
Ferguson, Myrtle May, . . . . .	Kansas City.
Figley, Angeline, . . . . .	Lawrence.
Figley, Gertrude, . . . . .	Lawrence.
Fischer, Earl Morton, . . . . .	Wamego.
Fisher, Nancy Marie, . . . . .	Lyons.
Foncannon, Frank, . . . . .	Emporia.



## JUNIORS—continued.

Ford, Herbert Ezra, . . . . .	Lawrence.
French, Will, . . . . .	Pittsburg.
Garrett, Irene May, . . . . .	Lawrence.
Gephart, Jesse T., . . . . .	Oskaloosa.
Gossett, Gale Galbaugh, . . . . .	Kansas City, Mo.
Greene, Linden Wells, . . . . .	Kansas City.
Greenfield, Myrtle, . . . . .	Sabetha.
Greenlees, Nellie Louise, . . . . .	Lawrence.
Griffin, Alfred Alford, . . . . .	Lawrence.
Griffiths, Glendale, . . . . .	Lawrence.
Hall, Jean George, . . . . .	Waterville.
Hanson, Anna Hansine, . . . . .	Lawrence.
Harper, Carroll Virginia, . . . . .	Hutchinson.
Heavey, Elizabeth, . . . . .	Leavenworth.
Heil, Roy Harrison, . . . . .	Topeka.
Henshall, James Edgar, . . . . .	Osborne.
Hill, Helen, . . . . .	Oswego.
Hoffman, Robert Lee, . . . . .	Ellsworth.
Hoffman, Walter Leonard, . . . . .	Enterprise.
Hood, Theodore Gilbert, . . . . .	Kiowa.
Humphrey, Arthur Spencer, . . . . .	Junction City.
Humphrey, Myrtle, . . . . .	Russell.
Hyre, Myrtle Ethel, . . . . .	Lawrence.
Jackson, Ola, . . . . .	Kansas City, Mo.
Johnson, Jamesina Clark, . . . . .	Topeka.
Johnson, John Carlisle, . . . . .	Formoso.
Johnson, Mina Rae, . . . . .	Norton.
Johnson, Delpha Victoria, . . . . .	Randolph.
Johnston, Marion Minnieola, . . . . .	Lawrence.
Jolley, Frank James, . . . . .	Topeka.
Kellerman, Lucile, . . . . .	Kansas City, Mo.
Killarney, Margaret, . . . . .	Atchison.
Kliewer, Herman Schmidt, . . . . .	Newton.
Kline, Hallie, . . . . .	Kingman.
Kohman, Edward Frederick, . . . . .	Dillon.
Kubik, Charles Loucek, . . . . .	Caldwell.
Layne, Zephyr Cedonia, . . . . .	Kansas City.
LeMoine, Albert Napoleon B., . . . . .	Concordia.
Leventhal, Benjamin Heim, . . . . .	Rosedale.
Long, Francis Honeymoon, . . . . .	Madison.
Long, Nina Jane, . . . . .	Madison.
Lovejoy, Owen Harrison, . . . . .	Atwood.
Lupton, Claribel Lytle, . . . . .	Lawrence.
Malleis, Otto, . . . . .	Halstead.
Mallory, Arthur Ernest, . . . . .	Scott City.
Manley, Anna R., . . . . .	Junction City.
Manley, Mildred Maurine, . . . . .	Iola.
March, Lucie Miles, . . . . .	Lawrence.
Martindale, Nell Minnette, . . . . .	Lawrence.
Maxwell, Herbert Spencer, . . . . .	Braddyville, Iowa.
Maynard, Rubey May, . . . . .	Kansas City, Mo.
Meyers, Orell Grace, . . . . .	Olathe.
Miller, Alice, . . . . .	Lawrence.
Miller, Marie Blanche, . . . . .	Leavenworth.
Miller, William Vernon, . . . . .	Emporia.
Montgomery, John Howard, . . . . .	Minneapolis, Minn.
Moore, Karl Emil, . . . . .	Inman.
Moore, Leland Wightman, . . . . .	Ottawa.
Moore, Oreta Elizabeth, . . . . .	Lawrence.
Moore, Will Andrew, . . . . .	Chapman.
Morris, Carrie Agnes, . . . . .	Oklahoma City, Okla.
Morris, Inez, . . . . .	Tecumseh.
Morrow, Lena Marie, . . . . .	Washington.
Morse, Florence Emera, . . . . .	Lawrence.
Morton, Winifred, . . . . .	Atchison.
Moses, Arthur C., . . . . .	Kansas City, Mo.
Mosser, Lloyd H., . . . . .	Hamlin.
Moys, Fay Cecilla, . . . . .	Lawrence.
Murphy, Beulah Violet, . . . . .	Lawrence.
Murray, Oscar Roy, . . . . .	Herington.

## JUNIORS—concluded.

McFarlin, Leota Lovina, . . . . .	Kansas City, Mo.
McGill, Lucien Rob, . . . . .	Hill City.
McKay, Donald, . . . . .	Girard.
Nolan, Helen, . . . . .	Lamont, Okla.
Oakley, Edna Bascolm, . . . . .	Kansas City, Mo.
O'Roke, Earl Cleveland, . . . . .	Sabetha.
Osgood, Clara Louise, . . . . .	Parsons.
Parker, John Bowman, . . . . .	Altoona.
Passon, Rebecca, . . . . .	Lawrence.
Pepper, Adella Morris, . . . . .	Kansas City, Mo.
Phelan, Susie, . . . . .	Holyrood.
Radcliff, Claude F., . . . . .	Topeka.
Ragsdale, Evalyne, . . . . .	Lawrence.
Redmond, Roscoe Royal, . . . . .	Ottawa.
Regier, John Milton, . . . . .	Moundridge.
Rhodes, William Lemuel, . . . . .	Kansas City.
Richardson, Jennie May, . . . . .	Lawrence.
Rogers, Myra, . . . . .	Abilene.
Rossmann, Mae Florence, . . . . .	Paola.
Ruhlandt, Bernice May, . . . . .	Osawatimie.
Sankee, Patti, . . . . .	Lawrence.
Sheppard, Cyril E., . . . . .	Wellsville.
Shklar, Tillie, . . . . .	Kiowa.
Siegel, Margaret, . . . . .	Kansas City, Mo.
Simms, Julia Anne, . . . . .	Kansas City, Mo.
Small, Edward Lorenzo, . . . . .	Lawrence.
Smart, Euphemia Mary, . . . . .	Ottawa.
Smith, Edna Maude, . . . . .	Smith Center.
Smith, Elsie Louise, . . . . .	Leavenworth.
Smith, Gordon, . . . . .	Lawrence.
Smith, John T., . . . . .	Lawrence.
Spalding, Jeannette, . . . . .	Kansas City, Mo.
Sparr, Helen Mary, . . . . .	Lawrence.
Sterling, Hermione Archer, . . . . .	Lawrence.
Stevens, Helen Katherine, . . . . .	Parsons.
Stuckey, George Harr, . . . . .	Formoso.
Sutton, Edgar Milton, . . . . .	Cawker City.
Swanson, Arthur Theodore, . . . . .	Randolph.
Swick, Emily Leora, . . . . .	Abilene.
Taylor, Edward Harrison, . . . . .	Richmond.
Thomes, Isabel Perkins, . . . . .	Kansas City, Mo.
Thompson, Arthur Harlan, . . . . .	Kansas City, Mo.
Thomson, Helen Houghton, . . . . .	Emporia.
Tull, Jimmie Marie, . . . . .	Abilene.
Ulrich, Grace Pauline, . . . . .	Lawrence.
Ulrich, Mabel Grace, . . . . .	Lawrence.
Van Eman, Andrew Stacey, . . . . .	Leavenworth.
Vaughn, Everett Waldo, . . . . .	Caldwell.
Walker, Josephine, . . . . .	Holton.
Wallace, Florence Ada, . . . . .	Phillipsburg.
Ward, Frank B., . . . . .	Kansas City.
Weaver, Harry Eugene, . . . . .	Belleville.
Wells, Frank Everts, . . . . .	Woodston.
Wetmore, Frank Alexander, . . . . .	Lawrence.
Wheeler, LeRoy Jay, . . . . .	Wa Keeney.
Wheeler, Mayme, . . . . .	Guthrie, Okla.
Wiley, Gertrude, . . . . .	Arkansas City.
Wilkins, Harry, . . . . .	Chapman.
Wilkinson, Lucile Hortense, . . . . .	Muskogee, Okla.
Wilson, Elizabeth Kreps, . . . . .	Kansas City, Mo.
Woodman, Sidney M., . . . . .	Wetmore.
Woodruff, Regina, . . . . .	Kingman.
Yates, Lucile L., . . . . .	Junction City.

## SOPHOMORES.

Allison, Ray Gilbert, . . . . .	Clay Center.
Anderson, Clara, . . . . .	Garland.
Anderson, Mabel May, . . . . .	Gas.
Anderson, William Shakespeare, . . . . .	Kansas City.
Asher, Lillian Lucile, . . . . .	Hutchinson.
Athay, Roland Milton, . . . . .	Kiowa.
Atkinson, Vera, . . . . .	Lawrence.
Babb, Alvin Leroy, . . . . .	Lawrence.
Babb, George Reuben, . . . . .	Lawrence.
Baker, Edward Sherman, jr., . . . . .	Kansas City.
Ballein, Fred Lancaster, . . . . .	Winfield.
Banker, Frances Almona, . . . . .	Russell.
Barnard, Florence M., . . . . .	Osawatomie.
Bates, Laura Fidelia, . . . . .	Garden City.
Battaile, John Francis, . . . . .	Lawrence.
Beamer, Raymond, . . . . .	Lawrence.
Beauchamp, Wilbur Lee, . . . . .	Holton.
Bechtold, Anna Dorothea, . . . . .	Lawrence.
Beck, Gladys, . . . . .	Kansas City.
Beeson, Ellwood Walter, . . . . .	Wichita.
Biddison, Marcia Dorothea, . . . . .	Goodland.
Black, Florence Lucile, . . . . .	Lawrence.
Black, Floyd Davidson, . . . . .	Severy.
Black, Frances Inez, . . . . .	Lawrence.
Blackmar, Howard B., . . . . .	Lawrence.
Blakey, Letitia, . . . . .	Pleasanton.
Boring, James Wilson, . . . . .	Spring Hill.
Bossi, John Trentini, . . . . .	Arkansas City.
Bowler, Joseph Lyndel, . . . . .	Kansas City.
Bowles, George H., . . . . .	Argentine.
Bozell, Bessie Marie, . . . . .	Beloit.
Brown, Clarence Albert, . . . . .	Pittsburg.
Brown, Lois Rose, . . . . .	Troy.
Broyles, Glen Hunt, . . . . .	Bethany, Mo.
Brunner, Ellen Mildred, . . . . .	Onaga.
Buchanan, Nellie Reece, . . . . .	Lawrence.
Bunn, Zippa Loraine, . . . . .	Lawrence.
Burkholder, William Miesse, . . . . .	Marion.
Burnett, Helen, . . . . .	Hymer.
Burrough, Phyllis Marguerite, . . . . .	Rosedale.
Butcher, Estelle Vee, . . . . .	Sedan.
Buxton, Lewis Augustime, . . . . .	Kansas City, Mo.
Buzick, William Alonson, . . . . .	Sylvan Grove.
Cahill, Maryzetta, . . . . .	Kansas City.
Calene, Glenn Clifton, . . . . .	Sylvan Grove.
Campbell, John Ross, . . . . .	Meade.
Canfield, Ruth Mae, . . . . .	Holton.
Carson, Frank L., . . . . .	Ashland.
Charles, William A., . . . . .	Great Bend.
Chesky, Frank Herbert, . . . . .	Nickerson.
Chisham, Faye Florence, . . . . .	Atchison.
Clark, Gladys Ruth, . . . . .	Fredonia.
Cobbs, Mabel Irene, . . . . .	Horton.
Connell, Jos. James, . . . . .	Topeka.
Conrad, Agnes, . . . . .	Kansas City, Mo.
Cook, Eva Mabel, . . . . .	Altamont.
Cook, Fern Alice, . . . . .	Wellington.
Coolidge, James Roger, . . . . .	Smith Center.
Cotter, Georgia Jane, . . . . .	Kansas City, Mo.
Coxedge, Lina, . . . . .	Parsons.
Cramer, Frederic H., . . . . .	Columbus.
Crawford, Paul, . . . . .	Kansas City.
Crego, John Garrett, . . . . .	Burlington.
Croan, Melvin, . . . . .	Kincaid.
Curran, John Halliday, . . . . .	Pittsburg.
Dale, Florence Olena, . . . . .	Lawrence.
Dale, La Vergne, . . . . .	Lawrence.
Dalton, Beatrice L., . . . . .	Lawrence.
Darland, Gertrude Eletha, . . . . .	Lawrence.

SOPHOMORES—*continued.*

Darland, Mary Edna, . . . . .	Lawrence.
Darrah, Margaret Rebecca, . . . . .	McPherson.
Daum, Bessie, . . . . .	Greensburg.
Daum, Kate, . . . . .	Greensburg.
Davidson, Helen Irene, . . . . .	Lawrence.
Davidson, Throck Martin, . . . . .	Wichita.
Davis, Eugene Wilson, . . . . .	Chapman.
Degen, Helen, . . . . .	Hoisington.
DeVault, Jessie Jane, . . . . .	Ocheltree.
Dixon, Lula Lee, . . . . .	Mound Valley.
Donnelly, Ina Beatrice, . . . . .	Kansas City, Mo.
Dunaway, Elizabeth, . . . . .	Oswego.
Dunbar, Carl Owen, . . . . .	Hallowell.
Dunlevy, Mabel Mary, . . . . .	Parsons.
Dupree, Louise M., . . . . .	Topeka.
Ebnother, Charles William, . . . . .	Downs.
Edwards, Wayne, . . . . .	Chapman.
Eisele, Henry Gottlieb, . . . . .	Eudora.
Eisenmayer, Walter Charles, . . . . .	Springfield, Mo.
Elliott, James Ryan, . . . . .	Linn.
Estep, Alma Ruth, . . . . .	Kansas City, Mo.
Evans, Esther Preston, . . . . .	Lawrence.
Ewers, Edmond Everett, . . . . .	Topeka.
Fay, Ruth Ina, . . . . .	Edmond, Okla.
Ferguson, William Ward, . . . . .	Olathe.
Fischer, Floyd Edward, . . . . .	Wamego.
Fisher, Winifred Cora, . . . . .	Lawrence.
Flagg, Paul Eldridge, . . . . .	Perry.
Flinn, Ruby Vee, . . . . .	Chanute.
Foulk, Fred B., . . . . .	Wichita.
Freiburghouse, Elizabeth M., . . . . .	Hiawatha.
Fretz, Daisy, . . . . .	Pratt.
Goldman, Irma, . . . . .	Kansas City, Mo.
Gonne, Florence May, . . . . .	Lawrence.
Gordon, Virgil Mae, . . . . .	Fort Scott.
Gorsuch, Cecil Otis, . . . . .	Sharon Springs.
Greenstreet, John Coleman, . . . . .	Parsons.
Greer, Mary Estellene, . . . . .	Kansas City, Mo.
Gustafson, Telka, . . . . .	Lawrence.
Hadley, Helena, . . . . .	Glen Elder.
Hamilton, Sandy, . . . . .	Columbus.
Harger, Lois, . . . . .	Abilene.
Harlow, Eugene Ballard, . . . . .	Kingman.
Harper, Iva Belle, . . . . .	Council Grove.
Hawes, Charles Earle, . . . . .	Augusta.
Hinkle, Helen, . . . . .	Halstead.
Hite, Ora Floy, . . . . .	Merriam.
Hobson, Asher John, . . . . .	Lawrence.
Hodder, Frederika, . . . . .	Lawrence.
Hoskins, Elmer Ray, . . . . .	Lawrence.
Houghton, James Henry, . . . . .	Lawrence.
Householder, Vale Imogen, . . . . .	Columbus.
Houston, Ethel Blanche, . . . . .	Wichita.
Hoyt, Homer, . . . . .	Argentine.
Hoyt, William Valentine, . . . . .	Lawrence.
Hughes, Francis George, . . . . .	Lawrence.
Hunter, Edwin Lawson, . . . . .	Lawrence.
Hurd, Bruce, . . . . .	Abilene.
Ingels, Pauline, . . . . .	Lawrence.
Jacobs, John Frederick, . . . . .	Athol.
Jacobus, Dorothy, . . . . .	Great Neck, L. I., N. Y.
Jenson, Howard Eikenberry, . . . . .	Herington.
Johnson, Everett Wallace, . . . . .	Coffeyville.
Johnson, Flaude Eddy, . . . . .	Lawrence.
Johnson, Gladys Aurelia, . . . . .	Norway.
Jones, Ethel Anna, . . . . .	Chanute.
Jordan, Warren Harper, . . . . .	Harper.
Kellogg, Harold Beecher, . . . . .	Santa Rosa, Calif.
Kennedy, Elizabeth Margaret, . . . . .	Lawrence.
Ketchum, Pauline, . . . . .	Lawrence.



SOPHOMORES—*continued.*

Kettler, Harry, . . . . .	Pittsburg.
Kimel, Chester LeRoy, . . . . .	Clearwater.
Kincaid, Flossie, . . . . .	Lawrence.
Klock, Lena Elizabeth, . . . . .	Lawrence.
Krehbiel, Carl Clifford, . . . . .	Moundridge.
Kyle, Emmet P., . . . . .	La Crosse.
Laffer, Henry Wilson, . . . . .	Jewell City.
Laming, Edith, . . . . .	Lawrence.
Latta, Trine Hardy, . . . . .	Wichita.
Latz, Jeannette Hastings, . . . . .	Kansas City, Mo.
Lawrence, James Frank, . . . . .	Lawrence.
Leasure, Fred Jay, . . . . .	La Cygne.
Lee, Robert Elias, . . . . .	Lawrence.
Liston, Odus, . . . . .	Altamont.
Lobsitz, Blanche, . . . . .	Perry, Okla.
Lodge, Edmund Anderson, . . . . .	Erie.
Lovejoy, Edith Emeline, . . . . .	Atwood.
Maag, Oscar Lewis, . . . . .	Russell.
Macy Ernest W., . . . . .	Glen Elder.
Malott, Anne Caroline, . . . . .	Abilene.
Marak, Mary Magdalen, . . . . .	Halstead.
Marsn, George Park, . . . . .	Kansas City.
Marshall, Joseph Truesdell, . . . . .	Concordia.
Meissner, Charles Albert, . . . . .	Lawrence.
Meissner, Lawrence Ferdinand, . . . . .	Lawrence.
Miller, Alfa, . . . . .	Lawrence.
Miller, Harry Edward, . . . . .	Eudora.
Miller, J. Glenn, . . . . .	Newton.
Miller, Ross H., . . . . .	Marion.
Miller, Warren Mahlon, . . . . .	Sabetha.
Minor, Milton Carlisle, . . . . .	Douglass.
Mitchell, Hannah Eileen, . . . . .	Lawrence.
Mix, Bertha Ethel, . . . . .	Tecumseh.
Moeller, Thos. Otto, . . . . .	Galena.
Morgan, Arthur Naylor, . . . . .	Leavenworth.
Morrison, Sarah, . . . . .	Kansas City, Mo.
Myers, Dessie Theo, . . . . .	Lawrence.
McArthur, John Cecil, . . . . .	Walton.
McCauley, Amy Evelyn, . . . . .	Hoisington.
McConnell, Ray Marmaduke, . . . . .	Lawrence.
McCormick, Clarence, . . . . .	Arkansas City.
McCreath, Catherine Elizabeth, . . . . .	Lawrence.
McCreath, Frances Christina, . . . . .	Lawrence.
McCullouch, Irene Agnes, . . . . .	Frankfort.
McDonald, Paul Leroy, . . . . .	McLouth.
McKinley, Walter Jay, . . . . .	Columbus.
McKittrick, Bessie Jane, . . . . .	Wilson.
McLellan, Marguerite Helen, . . . . .	Lawrence.
McMillin, Harrison, . . . . .	Arkansas City.
McNeal, Oattie, . . . . .	Norcatour.
Neumuller, Beatrice, . . . . .	Kansas City, Mo.
Nolan, Amelia, . . . . .	Lamont, Okla.
Nowlin, Mabel Ruth, . . . . .	Kansas City, Mo.
O'Neil, Grace, . . . . .	Hiawatha.
Patterson, Oliver Wellington, . . . . .	Lawrence.
Pautz, Verna Marie, . . . . .	Abilene.
Payne, Florence Mary, . . . . .	Lawrence.
Pendleton, Emma Helen, . . . . .	Lawrence.
Potter, Earl, . . . . .	Salina.
Powell, Alfred Richard, . . . . .	Lawrence.
Pratt, Ina Marion, . . . . .	Lawrence.
Purcell, Arthur L., . . . . .	Scott City.
Pyle, Helen M., . . . . .	Hiawatha.
Rambo, Hal Fletcher, . . . . .	Ottawa.
Ransom, Helen Maud, . . . . .	Lawrence.
Reding, Mary Gertrude, . . . . .	Lawrence.
Reichard, Anna Katherine, . . . . .	Paola.
Robbins, Meredith, . . . . .	Russell.
Robinson, Antoinette, . . . . .	Oswego.
Rodebush, Worth Huff, . . . . .	Riley.

## SOPHOMORES—concluded.

Rooney, Ellena Florence, . . . . .	Fairview.
Rose, Helen, . . . . .	Rosedale.
Rupert, Grace Margaret, . . . . .	Neodesha.
Rushmer, Josephine, . . . . .	Pueblo, Colo.
Salthouse, Louise E., . . . . .	McPherson.
Savage, Anna Elizabeth, . . . . .	Lawrence.
Schloss, Hazel Estelle, . . . . .	Atchison.
Schmitt, Edwin C., . . . . .	Moundridge.
Scholes, Van Allen, . . . . .	Council Grove.
Schwein, Bertha Olivia, . . . . .	Lawrence.
Scott, Carolyn, . . . . .	Guthrie, Okla.
Share, James Temple, . . . . .	Fort Scott.
Sharp, Elwood Armstrong, . . . . .	Council Grove.
Shive, John Wiseman, . . . . .	Burrton.
Sieder, Hulda Sophie, . . . . .	Enterprise.
Smith, Eugene Bryan, . . . . .	Lawrence.
Smith, Harold Harland, . . . . .	Lawrence.
Smith, Inez Frances, . . . . .	Lawrence.
Smith, Roy Esmond, . . . . .	Winchester.
Smyth, Jessie Miriam, . . . . .	Eureka.
Soper, Roy Jordan, . . . . .	Hutchinson.
Stackhouse, Margaret, . . . . .	Concordia.
Starns, Olive, . . . . .	Basehor.
Stephens, Nelson Timothy, . . . . .	Lawrence.
Stephenson, John Robert, . . . . .	Lawrence.
Stevens, George Loren, . . . . .	Coffeyville.
Stevenson, Isla Marie, . . . . .	Kansas City, Mo.
Syfert, Alva Clyde, . . . . .	Ashton.
Taylor, Bess Clara, . . . . .	Lawrence.
Taylor, Genevieve, . . . . .	Iola.
Taylor, Grace Joy, . . . . .	Lyons.
Thomas, Mary Eleanor, . . . . .	Emporia.
Thomson, John Woodman, . . . . .	Irving.
Tryon, Clare Henry, . . . . .	Kansas City.
Tudor Herbert Ovando, . . . . .	Holton.
Tupper, Catherine, . . . . .	Lawrence.
Turner, Joe Davis, . . . . .	Lawrence.
Van Doron, Ruth, . . . . .	Kansas City, Mo.
Walker, Guý R., . . . . .	Hutchinson.
Walton, Nan Edgarine, . . . . .	Leavenworth.
Ward, Roscoe, . . . . .	Belleville.
Ward, Vernon Orin, . . . . .	Wellington.
Weaver, Ross Eberhardt, . . . . .	Concordia.
Wedel, Theodore Otto, . . . . .	Newton.
Weldon, Virginia Aletha, . . . . .	Lawrence.
Westbrook, Mittie, . . . . .	Peabody.
Whitney, Elmer Lemuel, . . . . .	Talmage.
Wilber, Allen Sage, . . . . .	Lawrence.
Wiley, Geneva Pauline, . . . . .	Emporia.
Wiley, Helen Adelaide, . . . . .	Lawrence.
Wilkie, Grace, . . . . .	Wichita.
Williams, Callie Ann, . . . . .	Kansas City.
Williams, John Alexander, . . . . .	Kansas City, Mo.
Wineinger, Viola May, . . . . .	White Cloud.
Wood, Rachel Adah, . . . . .	Concordia.
Woodruff, Elizabeth Opal, . . . . .	Lawrence.
Woolsey, Carrie I., . . . . .	Lawrence.
Wright, Charles Ray, . . . . .	Winfield.
Zimmerman, Reba Mary, . . . . .	Lawrence.
Zwick, Alice May, . . . . .	Lawrence.

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## FRESHMEN.

Abels, Benjamin Harrison, . . . . .	Eudora.
Abels, Edwin Fred, . . . . .	Eudora.
Addison, Beula Dundeena, . . . . .	Kansas City, Mo.
Allen, Curtis, . . . . .	Lawrence.
Allen, Harold Murray, . . . . .	Kansas City, Mo.
Allison, Elizabeth C., . . . . .	McPherson.

## FRESHMEN—continued.

Allphin, Helen Louise	Lawrence.
Anderson Bessie May	Lawrence.
Arnett, Ila Maud	Lawrence.
Atkinson, Adrienne	Lawrence.
Atkinson, George W.	Pittsburg.
Ayer, May Carr	Kansas City, Mo.
Ayers, Rose Emily	Parsons.
Badger, Chester Anson	Overbrook.
Bailey, Bonnie Deane	Lawrence.
Bales, Beulah	Linwood.
Barnes, William Phineas	Blue Mound.
Bates, Gerald C.	Adrian, Mo.
Beadle, Bessie Mae	Wilson.
Beamer, Marion Ross	Parsons.
Beard, Ralph Roy	Paola.
Beardsley, Cecil Miles	Russell.
Bechtel, Eva	Hiawatha.
Benedict, Blanche R.	Lawrence.
Benkelman, George Albert, jr.	St. Francis.
Bennet, Emmet Leslie	Plains.
Benton, Charles Ernest	Fort Scott.
Bigelow, Edna Nadine	Gardner.
Bishop, Joe Baldwin	Lawrence.
Boddington, Edward Mozley	Kansas City.
Boice, Frederick Garner	Galena.
Bourbon, Rollo Preston	Kansas City, Mo.
Bower, Ruth	Winfield.
Boynton, Roland Elmer	Long Beach, Calif.
Bracewell, Russell Starkey	Kincaid.
Bramwell, Willis K.	Belleville.
Branine, Harold R.	Hutchinson.
Brook, Isaiah John	Blue Mound.
Brown, Marley Roberts	Lawrence.
Brown, Walter Haslett	St. Marys.
Brown, William Fayette	Lawrence.
Brunner, Ida	Onaga.
Buchanan, Elma Ruth	Lawrence.
Butts, Berenice Aileen	Wichita.
Cady, Fanny Alberta	Lawrence.
Campbell, Andrew Parkhurst	Fort Scott.
Campbell, Daniel Halstead	Tulsa, Okla.
Case, Edith May	Kansas City, Mo.
Castle, Clarence Austin	St. Joseph, Mo.
Caton, Candace Orene	Concordia.
Cayot, Stanley Merle	Parsons.
Chalfont, Arthur Raymond	Garden City.
Chase, Zula	Hutchinson.
Clark, Edna M.	Smith Center.
Clark, Elmer Clinton, jr.	Oswego.
Clark, Russell H.	Kansas City, Mo.
Clouse, Lee Frank	Augusta.
Clucas, Ruth	Pueblo, Colo.
Cochran, William Warren	Atwood.
Colin, Galen Cyril	Argonia.
Connor, Clarence Lee	Kansas City, Mo.
Cooper, Cedric M.	Springfield, Mo.
Cox, Carrie	Lawrence.
Cox, Girlie	Kansas City.
Crall, Ina Agnes	Winston, Mo.
Crawford, Annabella	Lawrence.
Crawford, R. Harold	Tonkawa, Okla.
Cressman, Ada Beatrice	Lawrence.
Crossland, John Russell	St. Joseph, Mo.
Crosswhite, John Sisk	Kansas City, Mo.
Crowley, Esther May	Lawrence.
Cruzan, Evelyn May	Bethany, Mo.
Culp, Lucy	Lawrence.
Curran, Idress	Lawrence.
Curray, Chris. Gilmore	Larned.
Curry, Clyde Lawrence	Kansas City.

## FRESHMEN—continued.

Curtis, Leona, . . . . .	Topeka.
Dahlene, Edward, . . . . .	Lawrence.
Dart, Raymond Osborne, . . . . .	Kansas City.
Dauber, Helen Alberta, . . . . .	Winfield.
Davis, Eugene Frank, . . . . .	Kansas City.
Davis, Frances Louise, . . . . .	Kansas City, Mo.
Davis, Manvel Humfrey, . . . . .	Greensburg.
Davis, Robert Crenshaw, . . . . .	Kansas City.
Detwiler, John Eli, . . . . .	Smith Center.
Diedrich, Henry William, . . . . .	Eudora.
Dillard, George Eckloff, . . . . .	Fort Scott.
Dillie, Lois Margaret, . . . . .	Atchison.
Dingee, Minnie Elizabeth, . . . . .	Minneapolis.
Dinsmore, Robert Scott, jr., . . . . .	Troy.
Dixon, Harry William, . . . . .	Kansas City.
Dixon, Otto, . . . . .	Mound Valley.
Downs, Cornelia Mitchell, . . . . .	Kansas City.
Drake, Esther Louise, . . . . .	Lawrence.
Drake, Nada May, . . . . .	Blue Mound.
Dunbar, Lucy Maud, . . . . .	Hallowell.
Dunn, Violet Wanda, . . . . .	Concordia.
Dyer, Rose Josephine, . . . . .	Baldwin.
Eaton, Lola Earle, . . . . .	Kansas City, Mo.
Ecroyd, Guy L., . . . . .	Arkansas City.
Edwards, George Herbert, . . . . .	Kansas City, Mo.
Eldridge, Ray Lemuel, . . . . .	Ellsworth.
Elliott, Russell Dunmire, . . . . .	Lawrence.
Ellis, Marian, . . . . .	Kansas City.
Ennefer, Ray Carroll, . . . . .	Pleasanton.
Evans, Harold David, . . . . .	Kansas City, Mo.
Evans, Ruth Anne, . . . . .	Lawrence.
Ewald, Mark Scheffer, . . . . .	Lawrence.
Ewart, Chester Harold, . . . . .	Minneapolis.
Falconer, Mabel Lucile, . . . . .	Kansas City.
Fleming, Henry James, . . . . .	Sterling.
Foster, Miriam Mitchell, . . . . .	Topeka.
Frank, Arvid L., . . . . .	Kansas City, Mo.
Frank, Frederick Rudolph, . . . . .	Lawrence.
Fuqua, Florence Frances, . . . . .	Kansas City.
Gardner, Richard Harland, . . . . .	Altoona.
Garnett, Ida Drake, . . . . .	Lawrence.
Gemberling, Grace Elizabeth, . . . . .	Lancaster.
Gibson, Charles Earl, . . . . .	Wellsville.
Golden, Lela, . . . . .	Fort Scott.
Goldman, Abe Milton, . . . . .	Kansas City, Mo.
Gorsuch, Pearl Elizabeth, . . . . .	Sharon Springs.
Graber, Otto Christy, . . . . .	Moundridge.
Graham, Irene Everette, . . . . .	Altamont.
Green, Ava Emma, . . . . .	Cawker City.
Greenfield, Edmon, . . . . .	Sabetha.
Greer, Caroline Virginia, . . . . .	Kansas City, Mo.
Grignard, Aimee Marie, . . . . .	New York City.
Grove, Theodora, . . . . .	Newton.
Gunning, Robert E. Lee, . . . . .	Wichita.
Gustafson, Alma, . . . . .	Lawrence.
Haggerty, Blanche Helen, . . . . .	Lyndon.
Haines, Ina St. Clair, . . . . .	Edwardsville.
Hall, Adine Vinson, . . . . .	Ottumwa, Ia.
Hammond, Charles Chandler, . . . . .	Clayton, N. M.
Harger, Ruth Moreau, . . . . .	Abilene.
Harmon, Glenn DeWitt, . . . . .	Wellington.
Hart, Walter Edward, . . . . .	Newton.
Haworth, Henry Huntsman, . . . . .	Lawrence.
Haynes, Arthur Haislet, . . . . .	Sabetha.
Hedrick, Marie Adeline, . . . . .	Kansas City, Mo.
Helvern, Lewie Elwood, . . . . .	Beattie.
Hemphill, Robert Warren, jr., . . . . .	Norton.
Hendrickson, Donald William, . . . . .	Kansas City, Mo.
Hightower, Sylvester Elmore, . . . . .	Kansas City.
Hinchman, Eda Lora, . . . . .	Lawrence.



## FRESHMEN—continued.

Hocker, Irvin True, . . . . .	Baxter.
Hodgson, Helen Dale, . . . . .	Lawrence.
Houghton, Helen Louisa, . . . . .	Lawrence.
Houston, Guy Robert, . . . . .	Wichita.
Hudson, Pearl, . . . . .	Fredonia.
Huffman, Genevieve Aleen, . . . . .	Abilene.
Hughes, Carl Franklin, . . . . .	Wellsville.
Hughes, William Lewis, . . . . .	<i>Arapaho, Okla.</i>
Hunter, Martha Mae, . . . . .	Lawrence.
Irwin, E. Ira, . . . . .	<i>Guthrie, Okla.</i>
Jacobs, Clarence Worall, . . . . .	Shook.
Janes, William Earl, . . . . .	Spring Hill.
Jarvis, Gladys Leah, . . . . .	Holton.
Johnson, Roy Orville, . . . . .	Sterling.
Jolley, Paul Simpson, . . . . .	Abilene.
Jones, Frank Nesbet, . . . . .	Columbus.
Jones, Ogden Sherman, . . . . .	Lawrence.
Keeler, Dorothy Isabel, . . . . .	Lawrence.
Kehl, Charles Cyrus, . . . . .	Newton.
Keith, Mary Helen, . . . . .	Lawrence.
Kellogg, Arthur Remington, . . . . .	<i>Kansas City, Mo.</i>
Kelly, Wm. Augustine, . . . . .	Atchison.
Kennedy, Edward Striet, . . . . .	Cedar Bluffs.
Kennedy, Marjorie Luella, . . . . .	Lawrence.
Klamm, Arthur George, . . . . .	Basehor.
Kohman, Emma Anna, . . . . .	Dillon.
Krebs, Anna Margaret, . . . . .	Lawrence.
Kruse, Schiller, . . . . .	Lawrence.
Lambe, Ruth Sarah, . . . . .	Lawrence.
Lambert, Walter Andrew, . . . . .	Leavenworth.
Landen, Alsie Marie, . . . . .	Lawrence.
LaRue, Mary Jane, . . . . .	Lawrence.
Lentz, Leotos, . . . . .	Lawrence.
Lewinsohn, James Gordon, . . . . .	Parsons.
Lewis, Joe J., . . . . .	Fort Scott.
Light, Naomi, . . . . .	Lawrence.
Long, Jacob Benjamin, . . . . .	Lawrence.
Lord, Ethel Elizabeth, . . . . .	Kansas City.
Lowrey, Maude Trosper, . . . . .	Frankfort.
Lucas, Meda Frances, . . . . .	Ashland.
Luke, Ittai Albert, . . . . .	Topeka.
Luther, Elsie Marie, . . . . .	Kansas City.
Lynch, Joseph Edward, . . . . .	Herington.
Madden, John Curry, . . . . .	Mound City.
Magathan, Wallace Clifton, . . . . .	Marion.
Maloy, Daniel Henry, . . . . .	Eureka.
Mann, Millie, . . . . .	Grenola.
Marchbanks, Howard Earl, . . . . .	Scammon.
Marcy, Joseph Ferdinand, . . . . .	Concordia.
Maris, Ward Hale, . . . . .	<i>Kansas City, Mo.</i>
Marks, George Washington, . . . . .	Lawrence.
Marshall, Horace, . . . . .	<i>Kansas City, Mo.</i>
Martin, Katherine Louise, . . . . .	<i>Kansas City, Mo.</i>
Mathis, Wanda, . . . . .	Newton.
Matthaei, Wesley Edmund, . . . . .	Ellinwood.
May, Charlotte King, . . . . .	Holton.
Mense, Hildegard Althea, . . . . .	<i>Kansas City, Mo.</i>
Merriam, Harriet Vera, . . . . .	Kansas City.
Meservey, Frances Harris, . . . . .	<i>Kansas City, Mo.</i>
Miller, Clarence, . . . . .	Independence.
Miller, John Richards, . . . . .	La Cygne.
Milton, Iva Pearl, . . . . .	Stafford.
Minner, Claude Baker, . . . . .	Soldier.
Minor, Stanley Nelson, . . . . .	<i>Kansas City, Mo.</i>
Moody, Floyd Emert, . . . . .	Fort Scott.
Moore, Joseph Earle, . . . . .	<i>Kansas City, Mo.</i>
Morgan, Howard Charles, . . . . .	Kansas City.
Morrow, Calvin, . . . . .	Washington.
Moss, Lottie Ethel, . . . . .	Kansas City.
Mowry, Elza Christopher, . . . . .	<i>Cortez, Colo.</i>

FRESHMEN—*continued.*

Mullett, Gertrude, . . . . .	Kansas City, Mo.
Myers, Oliver Orville, . . . . .	Fredonia.
McCoskrie, Anita Elvin, . . . . .	Chanute.
McCullough, Ashley Melvin, . . . . .	Tonganoxie.
McCune, Carrie Loleta, . . . . .	Leavenworth.
McFadden, Margaret Scroggs, . . . . .	Kansas City.
McFarland, Bernice, . . . . .	Lawrence.
McGeorge, Robin, . . . . .	Kansas City.
McIntosh, Roland Stuart, . . . . .	Kansas City, Mo.
McKenzie, Viva Hazeltine, . . . . .	Lawrence.
McMillin, Stewart Earl, . . . . .	Arkansas City.
McNaughton, Malcolm Donald, . . . . .	Leavenworth.
McMillin, Ellen Marguerite, . . . . .	Kansas City, Mo.
McNutt, Cora Elizabeth, . . . . .	Eureka.
Neal, Guy Olen, . . . . .	Bluff City.
Neuschwanger, Amanda, . . . . .	Osborne.
Neuschwanger, Sarah Maude, . . . . .	Osborne.
Nevin, Leila May, . . . . .	Lawrence.
Newell, Alma Dale, . . . . .	Garfield.
Noble, Sarah Alice, . . . . .	Keokuk, Iowa.
O Neil, George Raymond, . . . . .	Beattie.
Opperman, Elizabeth Margaret, . . . . .	Baxter Springs.
Patterson, Curtis John, . . . . .	Oskaloosa.
Pears, Lawrence Reece, . . . . .	Lawrence.
Peck, Ruby May, . . . . .	Garnett.
Perry, Arthur Choat, . . . . .	Kansas City, Mo.
Pinkerton, Stanley R., . . . . .	Olathe.
Piotrowski Edith Agnes, . . . . .	Fort Scott.
Platt, George Warner, jr., . . . . .	Topeka.
Powell, Frances Isabel, . . . . .	Lawrence.
Rankin, Donald Mark, . . . . .	Paola.
Ravenscraft, Mary, . . . . .	Ashland.
Reed, Claude Leroy, . . . . .	Clay Center.
Reed, Jessie Freeman, . . . . .	La Plata, Mo.
Reed, Mildred Barnhart, . . . . .	Lawrence.
Reed, Thomas Lester, . . . . .	Circleville.
Reid, Frank Raymond, . . . . .	Howard.
Reid, Roderick Vincent, . . . . .	Clay Center.
Richardson, Alma May, . . . . .	Lawrence.
Richardson, Esther Pauline, . . . . .	Lawrence.
Riney, Claude Raymond, . . . . .	Dodge City.
Ritter, Clair August, . . . . .	Clifton.
Roberts, Margaret, . . . . .	Lawrence.
Robinson, Helen Dena, . . . . .	Holton.
Rose, Sibyl Frances, . . . . .	Rosedale.
Ross, Paul, . . . . .	Alden.
Rowles, Laura Harriet, . . . . .	Wichita.
Rule, Ruth Barbara, . . . . .	Independence, Mo.
Rundle, Harriet Mortimer, . . . . .	Junction City.
Sands, Frank Creagon, . . . . .	Cherryvale.
Sankee, Ruth Eugenia, . . . . .	Lawrence.
Schuchart, Mary Ann, . . . . .	Waterville.
Schultz, Bernice Edmund, . . . . .	Barnes.
Schwinley, Audrey Effie, . . . . .	Lawrence.
Sealy, Mary Patience, . . . . .	Kansas City, Mo.
Shade, Florence May, . . . . .	Ellsworth.
Shanks, Kate Elizabeth, . . . . .	Simpson.
Sharp, Gladys, . . . . .	Newton.
Shearer, Adaline Jane, . . . . .	Kansas City, Mo.
Shope, Robert Sanford, . . . . .	Frankfort.
Short, Helen Marie, . . . . .	Leavenworth.
Shuck, Leota Vere, . . . . .	Kansas City.
Sluss, Harriet Jean, . . . . .	Tuscola, Ill.
Smith, Clarence, . . . . .	Lawrence.
Smith, Lucile, . . . . .	Kansas City, Mo.
Smith, Peter Frank, . . . . .	Potrevillo-Gibara, Cuba.
Smith, Preston Clift, . . . . .	Burlington.
Snider, Juliet, . . . . .	Fort Scott.
Soper, Fred Lowe, . . . . .	Hutchinson.

FRESHMEN—*continued.*

Spangler, Irma Bauman, . . . . .	Lawrence.
Sparling, John Edgar, . . . . .	Oneida.
Spotts, Vena Edna, . . . . .	Lawrence.
Spreier, Christine, . . . . .	Pawnee Rock.
Spreier, Frederick Franklin, . . . . .	Pawnee Rock.
Squires, Mildred Rachel, . . . . .	Neodesha.
Stemen, Ray, . . . . .	Kansas City.
Sterling, John Andrew, . . . . .	Carlton.
Sterns, Frank, . . . . .	Hiawatha.
Stinson, Edna Matilda, . . . . .	Winfield.
Stone, Henry Nathaniel, . . . . .	Kansas City.
Strachan, Norman Fraser, . . . . .	Eudora.
Straham, Vivian Susanna, . . . . .	Lawrence.
Strickland, Charles Edwin, . . . . .	Junction City.
Strobel, Clyde Adolph, . . . . .	Garfield.
Stuart, Maybelle Emerson, . . . . .	Kremlin, Okla.
Stubbs, Della Katherine, . . . . .	Lawrence.
Suchy, John Frank, . . . . .	Shields.
Swab, Charles Marion, . . . . .	Haddam.
Swarts, Ralph Easterday, . . . . .	Arkansas City.
Taylor, Alice Maud, . . . . .	Kansas City, Mo.
Taylor, Clyde Frank, . . . . .	Paola.
Taylor, Nellie Corda, . . . . .	Earlville, Ill.
Taylor, Nellie R., . . . . .	White Cloud.
Templin, Marjorie Alta, . . . . .	Lawrence.
Thompson, Mrs. Grace Elizabeth, . . . . .	Mankato.
Thompson, Leslie Ray, . . . . .	Netawaka.
Thomson, Rue Edyth, . . . . .	Junction City.
Thornton, Mabel, . . . . .	Kansas City, Mo.
Timanus, Effie May, . . . . .	Randolph, Mo.
Tipton, Denny Orlando, . . . . .	Norwich.
Trickett, Lawrence Gray, . . . . .	Kansas City.
Trousdale, Walter Joseph, . . . . .	Newton.
Truby, Marvin Frederick, . . . . .	Independence.
Tupper, Mary, . . . . .	Lawrence.
Underwood, Stephen Alexander, jr., . . . . .	Kansas City, Mo.
Utterback, Theodore Harvey, . . . . .	Medicine Lodge.
Vance, Besse Lea, . . . . .	Kansas City, Mo.
Van Eman, Edith Katherine, . . . . .	Leavenworth.
Vawter, Mary Margaret, . . . . .	Oberlin.
Venerable, Neosho Blaine, . . . . .	Kansas City, Mo.
Villepique, Marguerite Olive, . . . . .	Chanute.
Vose, William Ellsworth, jr., . . . . .	Ellis.
Waddel, Alfred Francis, . . . . .	Ottawa.
Walker, Fairfield Randall, . . . . .	Lawrence.
Walker, Sidney Carr, . . . . .	Holton.
Ward, Dorothy Sandiford, . . . . .	Lawrence.
Wasson, Hugh Presley, . . . . .	Rosedale.
Weaver, Edith Carrie, . . . . .	Lawrence.
Webb, Adin Hilton, . . . . .	Abilene.
Welch, Erroll Meredith, . . . . .	Cashion, Okla.
Welch, Howard Stanley, . . . . .	Gas.
Welsh, Rex Earl, . . . . .	Clifton.
West, Harry Andrew, . . . . .	Yates Center.
Wheeler, Jessie Francis, . . . . .	Russell.
Wible, Elmer Thomas, . . . . .	Holton.
Wiley, Ralph Crail, . . . . .	Lawrence.
Wilhelm, Esther Rebecca, . . . . .	Lawrence.
Williams, Charles G., . . . . .	Preston.
Williams, Helen, . . . . .	Independence.
Williams, Letha Louise, . . . . .	Lawrence.
Williams, Seymore Edward, . . . . .	Burlingame.
Willitt, Jessie Marie, . . . . .	Hiawatha.
Wilson, Harold Wesley, . . . . .	Horton.
Wingart, Carl Wayne, . . . . .	Topeka.
Woods, Mabel Faye, . . . . .	Burden.
Worden, Arthur Milton, . . . . .	Wellington.
Wren, Everett Westly, . . . . .	Kincaid.
Yates, Blyden William, . . . . .	Kansas City, Mo.

## FRESHMEN—concluded.

Yeoman, Ralph, . . . . .	Kingman.
Younggreen, Charles Clark, . . . . .	Topeka.
Zabel, George Washington, . . . . .	Wetmore.
Zimmerman, Levi Carl, . . . . .	Sterling.

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## SPECIAL.

Allen, William Albert, . . . . .	Lawrence.
Allison, George L., . . . . .	McPherson.
Babb, Edith, . . . . .	Lawrence.
Baird, William Enoch, . . . . .	Hallowell.
Bangs, Helen, . . . . .	Kansas City, Mo.
Bedford, John Raymond, . . . . .	Amarillo, Texas.
Benson, Ora Ray, . . . . .	Olathe.
Beyer, Melinda Lynn, . . . . .	Inman.
Black, Lloyd Lemon, . . . . .	Baldwin.
Blair, Gilbert Bruce, . . . . .	Topeka.
Brown, Mrs. Florence Marley, . . . . .	Olathe.
Brownlee, John Charles, . . . . .	Stafford.
Cain, William Quiggan, . . . . .	Atchison.
Callender, Harold, . . . . .	Kansas City.
Carothers, Estella Eleanor, . . . . .	Kingman.
Caylor, Arthur R., . . . . .	Olathe.
Charlesworth, Lloyd Warren, . . . . .	Omaha, Neb.
Coffman, Wilson R., . . . . .	Overbrook.
Conner, Winifred Mary, . . . . .	Lawrence.
Dahlene, Genevieve Dorothy, . . . . .	Lawrence.
Davis, Juanita, . . . . .	Cottonwood Falls.
Dennis, Fred E., . . . . .	Clovis, N. M.
Devaney, Martin Alexander, . . . . .	Lawrence.
Dodge, Clyde Arnold, . . . . .	Kansas City, Mo.
Doering, Callie Christina, . . . . .	Lawrence.
Dolan, Hazel Frances, . . . . .	Clifton.
Edwards, Leila La Monte, . . . . .	Kansas City, Mo.
Elward, Virginia, . . . . .	Hutchinson.
Fraser, Roy, . . . . .	Galetta, Ontario, Canada.
Frederick, Margaret Alice, . . . . .	Bonner Springs.
Freed, John Thompson, . . . . .	Scott City.
Gerken, John, . . . . .	Lawrence.
Glasscock, Edith Sara, . . . . .	Kansas City.
Guilfoyle, Matthew, . . . . .	Wamego.
Gunsaulus, Marie, . . . . .	Fort Scott.
Hale, Arthur E., . . . . .	Norton.
Healey, Florence, . . . . .	Lawrence.
Hill, Powell Henderson, jr., . . . . .	Lawrence.
Hinesley, William Earle, . . . . .	Lawrence.
Holcomb, Jessie, . . . . .	Parsons.
Holloway, M. Fay, . . . . .	Lawrence.
Horn, Angie, . . . . .	Lawrence.
Hosier, Abram William, . . . . .	Kansas City, Mo.
Humble, Mrs. Ethel Ruth, . . . . .	Lawrence.
Hunter, Mary Mabel, . . . . .	Labette.
Ise, Mary, . . . . .	Lawrence.
Jones, Ernest Clare, . . . . .	La Cygne.
Jones, James Hugh, . . . . .	Kansas City, Mo.
Jonte, John Herbert, . . . . .	Parsons.
Kennedy, James Lyle, . . . . .	Holton.
Ketchum, Harold J., . . . . .	Lawrence.
Kreider, Clare Samuel, . . . . .	Lawrence.
Kupfer, Louis R., . . . . .	Lawrence.
Lay, Earl Geo., . . . . .	Herington.
Lee, Arthur Albert, . . . . .	Columbus.
Leidigh, James T., . . . . .	Hutchinson.
Lohrenz, Henry W., . . . . .	Hillsboro.
Mason, Lowell, . . . . .	Lawrence.
Matkins, Benjamin Harrison, . . . . .	Lawrence.
Maughlin, Nan Vera, . . . . .	Lawrence.
Medes, Lloyd, . . . . .	Kansas City, Mo.
Mendell, Ernest Milton, . . . . .	Clay Center.



## SPECIAL—concluded.

Metz, Emma Theresa, . . . . .	Fort Morgan, Colo.
Moling, Frances Bertha, . . . . .	San Luis, Potosi, N. M.
Moore, Henry Ray, . . . . .	Burlington.
Morrow, Ethel Cory, . . . . .	Lawrence.
Morton, Mary Elizabeth, . . . . .	Tescott.
Murphy, Elizabeth Margaret, . . . . .	Lawrence.
Murphy, George A., . . . . .	Wichita.
McBride, Lulu Gertrude, . . . . .	Lawrence.
McMullen, Roy J., . . . . .	Great Bend.
Olson, Albin Alexander, . . . . .	Leonardville.
Parcels, Byron Miles, . . . . .	Lawrence.
Pardee, Benjamin V., . . . . .	Baldwin.
Parks, Mrs. Jessie Livingston, . . . . .	Lawrence.
Perkins, Carl Clifford, . . . . .	Lawrence.
Perry, Mabel, . . . . .	Kansas City, Mo.
Pilkenton, Nina Lenore, . . . . .	Lawrence.
Porter, Jane Bruce, . . . . .	Kansas City, Mo.
Rankin, Gretchen A., . . . . .	Lawrence.
Rankin, Laura Leo, . . . . .	Lawrence.
Rankin, Roy, . . . . .	Lawrence.
Ray, Cecil Claude, . . . . .	Wichita.
Reed, Chas. W., . . . . .	Concordia.
Reeves, Lewis T., . . . . .	Hutchinson.
Riley, Francis H. M., . . . . .	Kansas City, Mo.
Rogers, Wilbur Eldredge, . . . . .	Ridgewood, N. J.
Root, Burton, . . . . .	Lawrence.
Runnels, Annie, . . . . .	Kansas City, Mo.
Ryland, Reis J., . . . . .	San Jose, Calif.
Sammons, George Benjamin, . . . . .	Sabetha.
Scoville, Elizabeth, . . . . .	Rockford, Ill.
Shumard, Velma Dean, . . . . .	Colony.
Siegel, Virginia, . . . . .	Kansas City, Mo.
Smith, William Addison, . . . . .	Cuba.
Spalding, Arthur M., . . . . .	Lawrence.
Stark, Gail Harold, . . . . .	Ozawkie.
Stark, Stutely Henry, . . . . .	Ozawkie.
Staton, Ida Estella, . . . . .	Lawrence.
Staton, George Walter, . . . . .	Lawrence.
Stevenson, Arthur Earl, . . . . .	Baldwin.
Sterling, Genevieve, . . . . .	Lawrence.
Stone, Marguerite Bernon, . . . . .	Kansas City, Mo.
Surber, Paul Dwight, . . . . .	Independence.
Tandy, Martha Lucile, . . . . .	Winfield.
Thomas, Bradley A., . . . . .	Morrisville, Vt.
Thompson, Earl L., . . . . .	Colony.
Tripp, Newell R., . . . . .	Lawrence.
Vanlandingham, Ruth, . . . . .	Kansas City, Mo.
Walling, Guy Norman, . . . . .	Lawrence.
Waters, Robert James Delant, . . . . .	Kansas City, Mo.
Wattles, Willard, . . . . .	Wichita.
Wenkheimer, Alberta Minnie, . . . . .	Belpre.
Whitman, Meriel, . . . . .	Lawrence.
Wilber, Margaret Hinkle, . . . . .	Lawrence.
Williams, Reginald Victor, . . . . .	Kansas City, Mo.
Wilson, Earl H., . . . . .	Osawatomie.
Wilson, Lillian Alieda, . . . . .	Lawrence.
Woodhead, Lucy Ethalinda, . . . . .	Lawrence.
Zellner, Wesley Albrecht, . . . . .	Junction City.

# School of Engineering.

## SENIORS.

Bartlett, Ray L., Mech.E., . . . . .	Lawrence.
Beck, Edward Paul, C.E., . . . . .	Pratt.
Bellows, Warren S., C.E., . . . . .	Kansas City, Mo.
Boerner, Oscar Crist, C.E., . . . . .	Colby.
Broeker, Fritz Graf, Mech. E., . . . . .	Lawrence.
Brown, Jesse Fred, C.E., . . . . .	Lawrence.
Brune, Wesley Edward, C.E., . . . . .	Lawrence.
Burger, Harley Joe, C.E., . . . . .	Reserve.
Bush, Lee M., C.E., . . . . .	Burlingame.
Cadmus, Daniel Harrison, Min.E., . . . . .	Parsons.
Calderwood, Howard Newton, jr., Chem.E., . . . . .	Kansas City.
Caldwell, William, E.E., . . . . .	Geneseo.
Campbell, Carl Howard, C.E., . . . . .	Parsons.
Cayot, Claude Everett, E.E., . . . . .	Parsons.
Chapman, Chas. Herbert, E.E., . . . . .	Topeka.
Clark, James Erle, C.E., . . . . .	Osborne.
Coors, William Frederick, E.E., . . . . .	Humboldt.
Cross, Glenn, + E.E., . . . . .	Wichita.
Dahlene, Oscar, Mech.E., . . . . .	Lawrence.
Ellis, Herbert A., Min.E., . . . . .	Pratt.
Farrel, John Dillon, Mech.E., . . . . .	Wamego.
Fisher, Robert Richards, Mech.E., . . . . .	Lawrence.
Fishman, William, E.E., . . . . .	Kansas City, Mo.
Graham, Mathew A., C.E., . . . . .	Leavenworth.
Hackman, Robert George, Chem.E., . . . . .	Lawrence.
Hall, Ross Emerson, C.E., . . . . .	Hutchinson.
Haller, Chas. Arthur, C.E., . . . . .	Alma.
Hamilton, John Kahao, Chem.E., . . . . .	Kansas City, Mo.
Hammond, Robert Hugh, C.E., . . . . .	Lawrence.
Hanson, Carl Falster, E.E., . . . . .	Geuda Springs.
Hilford, Volney Hewitt, Mech.E., . . . . .	Caney.
Hoadley, Herbert Eugene, E.E., . . . . .	Fort Scott.
Hoffman, Henry A., E.E., . . . . .	Ellsworth.
Jones, Jacob Oscar, C.E., . . . . .	Barrett.
Jonte, John Herbert, Min.E., . . . . .	Parsons.
Judy, Wilbur H., Mech.E., . . . . .	Ottawa.
Kaffer, Stephen Lisle, Min.E., . . . . .	Atchison.
Keller, John Elmer, C.E., . . . . .	Independence.
King, Thomas Phillips, C.E., . . . . .	Minneapolis.
Klingberg, Wilbert Octavus, C.E., . . . . .	Osage City.
Knecht, Herman D., C.E., . . . . .	Pittsburg.
Lednicki, Victor E., Min.E., . . . . .	Everest.
Lieber, Edward Joseph, C.E., . . . . .	Osage City.
Long, Verne Vere, C.E., . . . . .	Madison.
Louderback, Harley Cosby, E.E., . . . . .	Denton.
Lynch, Frank Curtis, E.E., . . . . .	Cherryvale.
March, Robert Collamer, C.E., . . . . .	Topeka.
Monroe, Morton Glen, Min.E., . . . . .	Fairview.
Moon, Clare Ellery, C.E., . . . . .	Cottonwood Falls.
McLain, Samuel Arthur, Min.E., . . . . .	Newton.
McWhorter, C. Leonard, Min.E., . . . . .	Lawrence.
Nystrom, Clifford William, E.E., . . . . .	Topeka.
Ogden, Floyd Price, E.E., . . . . .	Lawrence.
Pohlman, Karl Lantz, E.E., . . . . .	Ellsworth.
Porterfield, Roy Albert, C.E., . . . . .	Holton.
Purton, Thomas Anthony, Mech.E., . . . . .	Minneapolis.
Reding, Henry Warren, E.E., . . . . .	Lawrence.
Redinger, David Hubbard, C.E., . . . . .	Vinland.
Riney, Arthur Herbert, C.E., . . . . .	Dodge City.
Roberts, Elmore K., Min.E., . . . . .	Longton.

+ Deceased.

## SENIORS—concluded.

Scamell, Ralph Eugene, C.E., . . . . .	Atchison.
Schreiner, Walter R., C.E., . . . . .	Frankfort.
Shaw, Harold King, E.E., . . . . .	Hiawatha.
Shotts, Timothy Ward, Min.E., . . . . .	La Crosse.
Spear, Roy Elbert, C.E., . . . . .	Wellington.
Stephenson, Thomas James, C.E., . . . . .	Holton.
Stocks, Brainerd Rae, E.E., . . . . .	Garden City.
Sutton, Everett Blair, Mech.E., . . . . .	Kansas City.
Thomas, Robert William, Min.E., . . . . .	Topeka.
Tibbets, Ernest Roy, C.E., . . . . .	Lawrence.
Troup, Kenneth F., C.E., . . . . .	Kansas City.
Van den Broek, John Abraham, C.E., . . . . .	<i>Middelharnis, Holland.</i>
Vawter, Will Elbert, Chem.E., . . . . .	Osawatomie.
Walker, Herman S., Min.E., . . . . .	Hutchinson.
Weekly, Guss Everrett, Chem.E., . . . . .	Iola.
Weibel, Ernest Edward, E.E., . . . . .	Lawrence.
Weith, George Stephen, Chem.E., . . . . .	La Harpe.
Young, Alex. Wm., C.E., . . . . .	Lawrence.

SENIORS, 78.

## JUNIORS.

Andrews, Oliver Lewellyn, Min.E., . . . . .	Powhattan.
Baldwin, Leslie Alonzo, E.E., . . . . .	Kansas City.
Becker, Henry Veltman, C.E., . . . . .	Ellsworth.
Boesche, Pearl J., C.E., . . . . .	Gaylord.
Bower, Noble, . . . . .	Winfield.
Bragg, Gilbert A., Chem.E., . . . . .	<i>St. Joseph, Mo.</i>
Bray, Emerson Lester, E.E., . . . . .	<i>Kansas City, Mo.</i>
Broderick, George Harold, Mech.Eng., . . . . .	Lawrence.
Brown, George Macmillan, Min.E., . . . . .	Pleasanton.
Glenn, Orrin Brown, E.E., . . . . .	Newton.
Browne, Lawrence Leland, Mech.E., . . . . .	Kansas City.
Carpenter, Ross Lawrence, Chem.E., . . . . .	Hiawatha.
Chase, Harry Valentine, Chem.E., . . . . .	<i>Kansas City, Mo.</i>
Conley, Murray C., Mech.E., . . . . .	<i>Oklahoma City, Okla.</i>
Crum, Errett Ross, E.E., . . . . .	Munden.
Cubbison, Chas. E., Chem.E., . . . . .	Gardner.
Daniels, James Ganson, Chem.E., . . . . .	Leavenworth.
Davenport, John Adrian, jr., C.E., . . . . .	Lawrence.
Dershem, Elmer, E.E., . . . . .	Baldwin.
Dodge, Bert E., C.E., . . . . .	Wichita.
Doyle, Lewis Crandall, C.E., . . . . .	Kingman.
Easterday, Elton Ellsworth, E.E., . . . . .	Lawrence.
Ellis, John Reese, . . . . .	Atchison.
Finney, Roy A., C.E., . . . . .	Wamego.
Forney, Ross Huber, Mech.E., . . . . .	Lawrence.
Godfrey, Truman Milo, Chem.E., . . . . .	<i>Kansas City, Mo.</i>
Grignard, Emile E., Chem.E., . . . . .	Lawrence.
Houk, Howard Herman, . . . . .	Pittsburg.
Humphrey, Thomas Paul, . . . . .	Mound Valley.
Johnston, Fred Emmett, C.E., . . . . .	Madison.
Johnston, Ralph Steele, E.E., . . . . .	Lawrence.
Joste, Frank L., C.E., . . . . .	Leavenworth.
Keraus, Arthur S., . . . . .	Wa Keeney.
Ketchum, Harold J., Mech.E., . . . . .	Lawrence.
Kreider, Charles Cottier, E.E., . . . . .	Lawrence.
Lyon, Louis, Min.E., . . . . .	McCune.
Mangelsdorf, Albert Henry, Min.E., . . . . .	Atchison.
Martinson, Charles Gilbert, Mech.E., . . . . .	Wichita.
Marvel, Orin Edward, E.E., . . . . .	Lawrence.
Mock, Benjamin Roy, E.E., . . . . .	Lawrence.
Moffett, Joseph Orr, jr., . . . . .	Peabody.
Morton, Ira William, E.E., . . . . .	Girard.
MacKinnon, Archibald Ronald, Chem.E., . . . . .	Lawrence.
McKown, George Wesley, C.E., . . . . .	Bunker Hill.
Nagle, Henry George, Mech.E., . . . . .	<i>Kansas City, Mo.</i>
Parker, Ross I., E.E., . . . . .	<i>Kansas City, Mo.</i>
Pyle, Glenn L., . . . . .	Coldwater.
Radcliffe, Howard, Min. and S.E., . . . . .	Frankfort.

## JUNIORS—concluded.

Randolph, Carl Lowell, C.E., . . . . .	Cherryvale.
Rhodes, Edmund Oliver, Chem.E., . . . . .	Dodge City.
Ritchey, Leonard Franklin, + C.E., . . . . .	Cheney.
Robinson, Charles Junius, Chem.E., . . . . .	Topeka.
Ryan, Edwin, C.E., . . . . .	Hope.
Smith, Guy Samuel, C.E., . . . . .	Hiawatha.
Smith, Ray Mohler, C.E., . . . . .	Hiawatha.
Spilman, Charles Clay, Chem.E., . . . . .	McPherson.
Steeper, Tommy Parr, E.E., . . . . .	Lawrence.
Stockwell, Herbert, C.E., . . . . .	Paola.
Thomen, Martin K., E.E., . . . . .	Junction City.
Tucker, Ralph J., C.E., . . . . .	Lyons.
Turkington, John Edward, E.E., . . . . .	Cherokee.
Veatch, Francis Montgomery, C.E., . . . . .	Atchison.
Waddington, Charles Verne, E.E., . . . . .	Wichita.
Walden, Forest Clinton, E.E., . . . . .	Newton.
Ward, Richard B., . . . . .	Belleville.
Wilhelm, Glenn Perrine, . . . . .	Clay Center.
Wilson, Harold Forney, E.E., . . . . .	Lawrence.
Wilson, Herbert L., C.E., . . . . .	Lyndon.
Wright, Earl Leon, E.E., . . . . .	Pleasanton.

JUNIORS, 69.

## SOPHOMORES.

Ackerman, Henry Calvin, . . . . .	Rosedale.
Altman, Clifford Ashton, . . . . .	Emporia.
Angevine, Leland Chas., Mech.E., . . . . .	Lawrence.
Armstrong, Clinton Garrett, Chem.E., . . . . .	Kansas City, Mo.
Armstrong, Frank Logan, E.E., . . . . .	Lawrence.
Arnold, Leroy, E.E., . . . . .	Piedmont.
Ashcraft, Charles Leslie, Mech.E., . . . . .	Sedgwick.
Atkinson, Charles Henry, Mech.E., . . . . .	Sterling.
Belt, Edison, E.E., . . . . .	Fredonia.
Bermant, Ira George, jr., C.E., . . . . .	Junction City.
Bernauer, Raymond Otto, Mech.E., . . . . .	Fredonia.
Bodman, Russell John, C.E., . . . . .	Kansas City.
Boring, James Wilson, E.E., . . . . .	Spring Hill.
Bronston, Harry, E.E., . . . . .	Wichita.
Brown, Eugene Ware, C.E., . . . . .	Fort Scott.
Budd, Ray Wilhite, E.E., . . . . .	Basehor.
Bunn, Paul King, C.E., . . . . .	Lawrence.
Burnham, Harry Edwin, C.E., . . . . .	Wa Keeney.
Bush, Dean Thomas, E.E., . . . . .	Kansas City, Mo.
Campion, Henry Hinkson, E.E., . . . . .	Leavenworth.
Carson, Earl, Mech.E., . . . . .	Peabody.
Clauser, John Milton, E.E., . . . . .	Denver, Colo.
Coats, Charles Melvin, Min.E., . . . . .	Chanute.
Coggins, Claude Lou, Mech.E., . . . . .	Wamego.
Cole, Perry Commodore, . . . . .	Clay Center.
Cone, Charles Luther, C.E., . . . . .	Lawrence.
Cowell, Wm. Harold, C.E., . . . . .	Lawrence.
Crawford, Don Kahr, E.E., . . . . .	Topeka.
Cross, Carl, E.E., . . . . .	Wichita.
Cummings, Joseph Green, Mech.E., . . . . .	Lawrence.
Davenport, Walter A., S.E., . . . . .	Lawrence.
Davis, Silas Irving, Chem.E., . . . . .	Lawrence.
DeForest, Thomas Moulton, C.E., . . . . .	Wetmore.
Devlin, Floyd Barnard, C.E., . . . . .	Newton.
Devlin, Francis Edwin, C.E., . . . . .	Newton.
Dodd, Clark Insley, C.E., . . . . .	Altoona.
Dousman, Donald James, C.E., . . . . .	Kansas City, Mo.
Dunn, George Chester, C.E., . . . . .	Hanover.
Elliot, Paul C., Mech.E., . . . . .	Lawrence.
English, Marion Leslie, . . . . .	Dodge City.
Filley, George Frank, E.E., . . . . .	Lawrence.
Fox, Wm. Fern, C.E., . . . . .	Lawrence.
Franks, John Brandon, C.E., . . . . .	Leavenworth.



## SOPHOMORES—continued.

Frush, Ralph Sydney, C.E.,	Kansas City, Mo.
Fuchs, Alfred Robert, E.E.,	Kansas City, Mo.
Ghormley, John Ray, C.E.,	Hutchinson.
Glenn, Guy Cecil, C.E.,	Paola.
Goff, Leonard Frank,	Kiowa.
Gossard, Alvin Henry, E.E.,	Kansas City, Mo.
Hainbach, Charles John, Min.E.,	Chanute.
Hansen, Herbert C., E.E.,	Independence.
Hartman, Elmer Edward, E.E.,	Kansas City.
Hartman, Ezra Mozart, Mech.E.,	Junction City.
Helsel, Clarence L.,	Pratt.
Hennessy, Thomas Patrick, E.E.,	Fulton.
Hickey, Lisle Lester, C.E.,	Ottawa.
Hill, George Homer, C.E.,	Paola.
Hobbs, Maurice Hill, E.E.,	Fairview.
Hoffman, Ralph Nicholas, Min.E.,	Parsons.
Jaques, Ewart Paul, C.E.,	Kansas City.
Jenkins, Harold Marvin, E.E.,	Cherokee.
Jones, Thomas Roy, C.E.,	Arkansas City.
Kingman, Winslow Ames, C.E.,	Mexico, D. F. Mex.
Kleihege, Daniel Bertram, Chem.E.,	Lawrence.
Knerr, Lewis Ellsworth, Mech.E.,	Kansas City, Mo.
Lawrence, James Frank,	Lawrence.
Leatherock, Lloyd Edmond, C.E.,	Cherryvale.
Loomis, Crosby G., E.E.,	Council Grove.
Lyder, Ernest Elmer, Mech.E.,	Paola.
Madlem, Leo S., Chem.E.,	Lawrence.
Malcolmson, James Donovan, Chem.E.,	Kansas City, Mo.
Martin, Ransom Melvin, C.E.,	Herington.
Massey, Mark Fuller, E.E.,	Chanute.
Mellick, Lloyd V.,	La Crosse.
Messenger, Frank DeWitt, C.E.,	Lawrence.
Meyer, Paul Alexander, E.E.,	Centralia.
Mickey, D. DeWitt, C.E.,	Junction City.
Miller, J. Glenn,	Newton.
Moore, Walter Nathaniel, C.E.,	Kansas City, Mo.
Murphy, George Robert, C.E.,	Oklahoma City, Okla.
Newby, Howard Lee, Mech.E.,	Acme, Texas.
Powell, Alfred Richard,	Lawrence.
Price, William F., jr., E.E.,	Topeka.
Richardson, Howard Logan, S.E.,	Lawrence.
Riddle, Floyd Kenyon, C.E.,	Herington.
Riddle, Karl Leon, C.E.,	Herington.
Riordan, Joseph Alphonsus, Chem.E.,	Solomon.
Roberts, Clay, Chem.E.,	Kansas City.
Rountree, Ernest Alonzo, S.E.,	Cherokee.
Rush, Allen Herman, E.E.,	Cherokee.
Ruth, B. Alvin, C.E.,	Moundridge.
Ryland, Reis Joseph, C.E.,	San Jose, Calif.
Scearce, George Dawson, E.E.,	Kansas City, Mo.
Schooley, Sparks Sylvester, E.E.,	Kansas City.
Schwab, James W., Chem.E.,	Kansas City, Mo.
Scott, Harry Murphy, Min.E.,	Blackwell, Okla.
Seger, Ralph Logan,	Topeka.
Seibel, Clifford Winslow, Chem.E.,	Kansas City, Mo.
Sharp, Richard Woods, Chem.E.,	Topeka.
Siegrist, Ivan Sullivan, C.E.,	Kansas City, Mo.
Sihler, Albert Charles, E.E.,	Kansas City.
Smith, Gilbert Reuben, C.E.,	Lawrence.
Smith, Raymond Elmer,	Wamego.
Soelter, Herbert Fred,	Wamego.
Sommers, Herbert Calvin, Min.E.,	Abilene.
Spray, Chester Allen,	Lawrence.
Staley, Harry, C.E.,	Richmond.
Steele, Russell Benton, Mech.E.,	Garnett.
Stewart, Lincoln Adair, Min.E.,	Hutchinson.
Tangeman, William Henry, Mech.E.,	Newton.
Thompson, Wayne Douglas, E.E.,	Wichita.
Trabue, Mayor Everett, E.E.,	Lawrence.
Underwood, Andrew Benonia, E.E.,	Kansas City, Mo.

## SOPHOMORES—concluded.

Van Houten, Edwin A., Mech.E., . . . . .	Topeka.
Weaver, Glenn Shellborn, E.E., . . . . .	Concordia.
Wentling, George Byron, Mech.E., . . . . .	Argentine.
Wheelock, Donald Lawrence, C.E., . . . . .	Lawrence.
Young, Bruce Fitzgerald, E.E., . . . . .	Lyons.
Young, James Arthur, C.E., . . . . .	Lawrence.

SOPHOMORES, 119.

## FRESHMEN.

Adams, Clyde Melvin, C.E., . . . . .	Topeka.
Alder, Grover Cecil, E.E., . . . . .	Leonardville.
Alexander, Charles Freeman, E.E., . . . . .	Stockton.
Allen, Glenn Lee, Min.E., . . . . .	Lawrence.
Allison, Lawrence M., Mech.E., . . . . .	Lawrence.
Arnett, Clarence Lester, Mech.E., . . . . .	Newkirk, Okla.
Atkinson, Arthur Addison, . . . . .	Sterling.
Baker, Stanley Bushnell, E.E., . . . . .	Cherryvale.
Baldwin, Ernest Joy, C.E., . . . . .	Cherryvale.
Barnes, Wilbur Hill, E.E., . . . . .	Kansas City.
Baughner, Howard Nathan, Mech.E., . . . . .	Kinsley.
Bennett, James Leroy, Chem.E., . . . . .	Carthage, Mo.
Biddison, George F., . . . . .	Goodland.
Boice, Frederick Garner, C.E., . . . . .	Galena.
Boies, Earle Artilles, C.E., . . . . .	Holton.
Bolinger, Lyman E., C.E., . . . . .	Clearwater.
Bower, Ralph Spencer, Mech.E., . . . . .	Kansas City, Mo.
Brouk, Charles Ludvik, C.E., . . . . .	Wilson.
Brouk, James Anton, . . . . .	Wilson.
Brown, Loren Elden, E.E., . . . . .	Delphos.
Brown, Will E., C.E., . . . . .	Robinson.
Bunn, Herbert Lucien, C.E., . . . . .	Kansas City.
Burke, John Stephen, C.E., . . . . .	Kansas City.
Butler, John Shadel, Mech.E., . . . . .	Kansas City, Mo.
Byers, William Berthier, Chem.E., . . . . .	Linwood.
Cadwell, Harold Vernon, Chem.E., . . . . .	Nowata, Okla.
Campbell, Fred Cooley, C.E., . . . . .	Poplar, Mont.
Cassingham, Chester Snyder, C.E., . . . . .	Warrensburg, Mo.
Caswell, Arthur Bernard, E.E., . . . . .	Belleville.
Charpie, Samuel James, E.E., . . . . .	Kingman.
Cissna, Volney Judson, . . . . .	Fort Scott.
Clarke, Clarence Stephen, E.E., . . . . .	Springfield, Mo.
Coburn, James Mitchell, jr., . . . . .	Kansas City, Mo.
Cook, Hale Scoville, Mech.E., . . . . .	Kansas City, Mo.
Cooper, William Wirt, C.E., . . . . .	Americus.
Crawford, Ansel Edwin, C.E., . . . . .	Lyons.
Cunnick, Paul Carlton, Mech.E., . . . . .	Lawrence.
Dale, Kirke Woodford, E.E., . . . . .	Cedar Vale.
Davison, Elmer Joseph, . . . . .	Bonner Springs.
Day, Lloyd Joseph, E.E., . . . . .	Glen Elder.
Dayhoff, Insley Lamar, E.E., . . . . .	Kansas City, Mo.
Dilley, Ralph Brown, C.E., . . . . .	Hiawatha.
Dimmitt, Clarence Elmer, E.E., . . . . .	Roswell, N. M.
Dingelstedt, Otto Ernest, C.E., . . . . .	Lawrence.
Dodd, Leslie Harold, C.E., . . . . .	Langdon.
Duncan, Arthur Franklin, . . . . .	Chanute.
Fairchild, Samuel Gilbert, C.E., . . . . .	Hutchinson.
Fecht, Arthur John, E.E., . . . . .	Kansas City.
Feierabend, Harold Herman, E.E., . . . . .	Atchison.
Fillmore, Benjamin DeWitt, E.E., . . . . .	Blue Rapids.
Flint, Herbert, . . . . .	Girard.
Forbes, Wylie Hazard, E.E., . . . . .	Wathena.
Fowler, Charles Vern, . . . . .	Lawrence.
Fuller, O. O., C.E., . . . . .	Geneseo.
Gates, Wm. Adelbert, E.E., . . . . .	Logan.
Godding, George Haighler, . . . . .	Osawatomie.
Goff, Ivan Lard, E.E., . . . . .	Lawrence.
Granger, Marshall Allen, . . . . .	Lawrence.
Greenless, Charles Robert, Min.E., . . . . .	Lawrence.
Gunnell, Palmer Mackenzie, E.E., . . . . .	Wichita.

FRESHMEN—*continued.*

Hamm, Olley Harold, C.E.,	Arkansas City.
Harbaugh, Harry Frantz,	Linwood.
Hartman, John Milton, Mech.E.,	Junction City.
Hazen, Daniel Francis, Elec. and Mech.E.,	Lawrence.
Hebard, Thomas Gilbert,	Fort Scott.
Heizer, Claude Allen, E.E.,	Tonganoxie.
Hellener, Earl Edgerton, E.E.,	Atchison.
Helm, Charles Frank,	La Junta, Colo.
Hess, Raymond, Chem.E.,	Topeka.
Heter, Waid,	Sterling.
Hite, Oral Lee, C.E.,	Lawrence.
Home, Alva Earl,	Beloit.
Hornaday, Walter Chenault,	Fort Scott.
Hughes, Alfred Samuel, E.E.,	Arapaho, Okla.
Hunter, Earl William,	Lawrence.
Hunter, Fred, C.E.,	Labette.
Jackson, Lyman Lewis, Mech.E.,	Clay Center.
Johnson, Amos Daniel, C.E.,	Kansas City, Mo.
Jones, Albert Roscoe, Chem.E.,	Pittsburg.
Jones, Clarence Strain, C.E.,	Leavenworth.
Jones, Frank Allen, E.E.,	Topeka.
Jones, Vinton,	Kansas City, Mo.
Kelley, Milton William,	Lawrence.
Keyser, Grier Milton, E.E.,	Wilson.
King, Harlen Dwight, C.E.,	Cawker City.
Kinnear, Lawrence Wilson,	Kansas City, Mo.
LaRue, James Eugene, C.E.,	Lawrence.
Lauterbach, William John, Chem.E.,	Pekin, Ill.
Lay, Earl George,	Herington.
Malcolmson, William Jack, Mech.E.,	Kansas City, Mo.
Maltby, Arthur Raymond, E.E.,	McPherson.
Martin, Edward James,	Lawrence.
Martin, Virgil L., Mech.E.,	Douglass.
Maurer, Ward Byron, C.E.,	Topeka.
Moeller, William Henry, E.E.,	Galena.
Money, Ala Earl, C.E.,	Herington.
Moore, Leo George,	Lawrence.
Moore, Raymond Francis, E.E.,	Atchison.
Musselman, John Christian, E.E.,	Kansas City, Mo.
McDougall, John Roswell, E.E.,	Kansas City.
McVey, Louis Lorimer, E.E.,	Sterling.
Nelson, Stanley Barrows,	Paris, Texas.
Newcomb, Joseph Oliver, C.E.,	Lawrence.
Nigh, Claude Hubbard, Mech.E.,	Iola.
Nofsinger, Lewis Esmonde, Mech.E.,	Kansas City, Mo.
Norton, Leonard Raymond, C.E.,	Morrisville, Vt.
Oman, Carl, E.E.,	Garnett.
Parker, James, C.E.,	Independence.
Parkhurst, Ivan Paul, E.E.,	Kinsley.
Pfeiffer, Claude Edward, C.E.,	Kansas City.
Phillips, Harvey Addison, Mech.E.,	Greeley, Colo.
Pinkerton, Howard King, E.E.,	Olathe.
Poundstone, Leon Harmon, E.E.,	Blackwell, Okla.
Reed, Dick Ritchie,	Topeka.
Reid, Donald,	Kansas City, Mo.
Reymond, Paul LeGrand, Mech.E.,	Kansas City, Mo.
Richards, Addison, E.E.,	Kansas City, Mo.
Riley, Lee, jr., C.E.,	Kansas City.
Rose, Harry Ercell, S.E.,	Elmdale.
Royce, LaRue, C.E.,	Topeka.
Samson, Henry Ernest,	Quinter.
Scaggs, Claude Albertine, C.E.,	Winona.
Schooley, Emmet Franklin, Mech.E.,	Kansas City, Mo.
Scott, Jesse Woods, C.E.,	Topeka.
Sheldon, Roy Emmor,	Paola.
Siegfried, Harry,	Burlington.
Smith, Charles Hoyt, E.E.,	Spring Hill.
Smith, John Rhodes, E.E.,	Sterling.
Smith, Lester Lloyd,	Chanute.
Sowers, Claude Edward, E.E.,	Wichita.

## FRESHMEN—concluded.

Springer, Roy Stanley, Min.E.,	El Dorado.
Stacey, William Arthur, C.E.,	Abilene.
Stocks, George Benjamin, E.E.,	Blue Rapids.
Strother, Albert Lester, E.E.,	Kansas City, Mo.
Taylor, William Edward, C.E.,	Kansas City, Mo.
Tholen, Charles Webster, E.E.,	Leavenworth.
Thomas, Raymond Sankey, E.E.,	Lawrence.
Uhrlaub, Julius George,	Lawrence.
Veirs, Cyrus Robb, C.E.,	Independence.
Walker, Oliver David,	Kansas City, Mo.
Watson, Caryl Everett, C.E.,	Lincoln.
Weidlein, William Dale, C.E.,	Olathe.
Welch, Gordon Burnett,	Gas.
Welsh, Harry Esmond, Mech.E.,	Chanute.
Wiedeman, Franz Gustav,	Lawrence.
Wilhelm, Chas. Frederick, E.E.,	Kansas City, Mo.
Wilson, Dales Marion,	Sterling.
Wilson, Merle Ellsworth, C.E.,	Chanute.
Yoe, George Harris, C.E.,	Independence.
Zimmerman, Roy Shadel, Mech.E.,	Hiawatha.

FRESHMEN, 150.

## SPECIAL.

Cotton, Almont Burton,	Wamego.
Dods, John Huntington, C.E.,	Cherryvale.
Everett, Robert Allen, Mech.E.,	Emporia.
Hubbell, Robert Chester,	Fredonia.
Jones, Harold Noble, E.E.,	Colony.
Magee, Harry Lyle,	Lawrence.
Marlin, Ralph LaVerne, C.E.,	Eureka.
Moon, James Albert, Chem.E.,	Lawrence.
Neuschwanger, Elmer Graybill, Mech.E.,	Osborne.
Ovtcharoff, Artamas Vangeloff,	Lawrence.
Pauly, Howard Clyde,	Kansas City, Mo.
Pike, Harry F.,	Fall River.
Roberts, Leo Bond, Min.E.,	Osage City.
Rohrer, Walter Elmer, Mech.E.,	McAlister, Okla.
Russell, Geo. W., Mech.E.,	Lawrence.
Shidler, John Raymond, C.E.,	Anthony.
Sowers, Clarence Ralph,	Wichita.
Steele, Horace Eaton,	Lawrence.
Stephens, Edward Everett, E.E.,	Bethel.

SPECIALS, 19.



## School of Fine Arts.

### SENIORS.

Barkdull, Blanche Anna, . . . . .	Lawrence.
Barrett, Lucile Valentine, . . . . .	Hoisington.
Bethers, Elizabeth, . . . . .	Lyons.
Cory, Chloe, . . . . .	Harper.
Crum, Mattie Evelyn, . . . . .	Munden.
Edgerton, Lyla Della, . . . . .	Randolph.
Eddie, Fern Elizabeth, . . . . .	Lawrence.
Ellis, Pearl, . . . . .	El Dorado.
Fisher, Mrs. Sadie Isabel, . . . . .	Lawrence.
Ford, Creola Olive, . . . . .	Lawrence.
Hardcastle, Cornelia, . . . . .	Emporia.
Hase, Clara Augusta, . . . . .	Lawrence.
Hess, Ethel Mary, . . . . .	Alma.
Lawson, Edith A., . . . . .	Russell.
McCammon, Leah Constance, . . . . .	Lawrence.
Rankin, Gretchen, . . . . .	Lawrence.
Reynolds, Cora, . . . . .	Lawrence.
Rowlands, Gertrude Mabel, . . . . .	Lawrence.
Sanders, Elva Bonn, . . . . .	Burlington.
Schleifer, Zana, . . . . .	Lawrence.
Sellards, Mae, . . . . .	Lawrence.
Stiles, Hazel, . . . . .	Leavenworth.
Varner, Gertrude Nelle, . . . . .	Topeka.
Young, E. Maynerd, . . . . .	Girard.

SENIORS, 24

### JUNIORS.

Alford, Sylvia Daphne, . . . . .	Lawrence.
Barkdull, Josephine, . . . . .	Lawrence.
Briggs, Arta Priscilla, . . . . .	Lawrence.
Buchanan, Mrs. Olive, . . . . .	Lawrence.
Eberle, Mona Newton, . . . . .	Lawrence.
Foster, Neva June, . . . . .	Lawrence.
Harshberger, Audrey, . . . . .	Lawrence.
Hazelrigg, Mildred, . . . . .	Topeka.
Ishmael, Caroline Anna, . . . . .	Kiowa.
Morin, Mary Maude, . . . . .	Williamstown.
Ogden, Geneva S., . . . . .	Lawrence.
Palmer, Mary Margaret, . . . . .	Lawrence.
Pendelton, Laura Sophie, . . . . .	Lawrence.
Ridenour, Lenna, . . . . .	Emporia.
Zoellner, Maud Elizabeth, . . . . .	Tonganoxie.

JUNIORS, 15.

### SOPHOMORES.

Beal, Zoe, . . . . .	Pittsburg.
Brown, Lucille Crozier, . . . . .	Lawrence.
Browning, Hazel, . . . . .	Cherryvale.
Cook, Lydia Emma, . . . . .	Kansas City, Mo.
Fincke, Amanda, . . . . .	Rosedale.
Gufier, Augusta, . . . . .	Lawrence.
Hardman, Augusta Mina, . . . . .	Lansing.
Jackson, Clara Elizabeth, . . . . .	Columbus.
Keith, Erma, . . . . .	Seneca.
Kuchera, Leora Bessie, . . . . .	Belleville.
LeSuer, Lida Charles, . . . . .	Lawrence.
Lowe, Naomi Elizabeth, . . . . .	Lawrence.
Matkins, Lillian Grace, . . . . .	Lawrence.
Miller, Edna Leone, . . . . .	Leavenworth.
Parrott, Lucy Lubel, . . . . .	Kansas City, Mo.
Robbins, Leroy, . . . . .	Arkansas City.

## SOPHOMORES—concluded.

Robinson, Clarice Lillian, . . . . .	<i>Kingfisher, Okla.</i>
Stevens, Bertha, . . . . .	Parsons.
Staton, Ida Estella, . . . . .	Lawrence.
Stout, Blythe, . . . . .	Lawrence.
Swisher, Ruth, . . . . .	Lawrence.
Tilford, Alice Marie, . . . . .	Olathe.
Williford, Ethelwynne, . . . . .	Paola.
Wilson, Evalyn, . . . . .	Leavenworth.
Wolf, Vera Nell, . . . . .	Lawrence.
Woodruff, Sybil, . . . . .	Kingman.
Woolsey, Helen Clair, . . . . .	Eudora.

SOPHOMORES, 27.

## FRESHMEN.

Baker, Maude Lucile, . . . . .	Lawrence.
Bedford, Marion Page, . . . . .	<i>Grand Rapids, Mich.</i>
Blair, Mary Fay, . . . . .	Spring Hill.
Brewer, Gustava Limus, . . . . .	Centralia.
Brown, Bernice, . . . . .	Holton.
Brown, Lo Alma, . . . . .	Lawrence.
Burgess, Bertha Eunice, . . . . .	Dougllass.
Burnham, Ruth, . . . . .	Lawrence.
Carraher, Nelle, . . . . .	<i>Kansas City, Mo.</i>
Cater, Ruth, . . . . .	<i>Marceline, Mo.</i>
Caylor, Arthur R., . . . . .	Olathe.
Clayton, Clara Meacham, . . . . .	Great Bend.
Coleman, Bonnie Maude, . . . . .	Garnett.
Cooper, Charles Edmond, . . . . .	<i>Arapaho, Okla.</i>
Corle, Ruth Ethel, . . . . .	Lawrence.
Cox, Winifred Ora, . . . . .	Hays.
Creighton, Margaret Jessie, . . . . .	Morrowville.
Dawson, Hazel, . . . . .	St. John.
Dunlop, Helen Elizabeth, . . . . .	<i>El Reno, Okla.</i>
Ellsworth, Edith Myrtle, . . . . .	Cherryvale.
Ellsworth, Mrs. N. Ednah, . . . . .	Cherryvale.
Epley, Ernest Norton, . . . . .	Lawrence.
Falconer, Mabel Lucille, . . . . .	<i>Kansas City.</i>
Fox, Margaret Agnes, . . . . .	Tonganoxie.
Fox, Ruth Clyda, . . . . .	Lawrence.
Frederick, Margaret Alice, . . . . .	Bonner Springs.
Gabriel, Edith Margaret, . . . . .	North Topeka.
Garvin, Mae, . . . . .	Goff.
Gilmore, Carrie Harrison, . . . . .	El Dorado.
Groberty, Zora Josephine, . . . . .	Dodge City.
Gurnea, Mary, . . . . .	Belleville.
Hansen, Alpha Florence, . . . . .	Logan.
Hart, Frances Folsom, . . . . .	<i>La Junta, Colo.</i>
Hayes, Helen Mary, . . . . .	Lawrence.
Hinesley, Edith Elizabeth, . . . . .	Lawrence.
Hoffer, Emma Ida, . . . . .	Lawrence.
Hudson, Elsie Harlan, . . . . .	Lawrence.
Hutchison, Mary Emily, . . . . .	<i>Joplin, Mo.</i>
Hyre, Florence, . . . . .	Lawrence.
Jensen, Lillian Marie, . . . . .	Lawrence.
Johnson, Arthur, . . . . .	Lawrence.
Jordan, May Helen, . . . . .	Lawrence.
Keen, Mrs. Etta Lovica, . . . . .	Lawrence.
Lawson, Ruth, . . . . .	<i>Kansas City, Mo.</i>
Longabaugh, Hazel Joy, . . . . .	Halifax.
Lord, Ethel Elizabeth, . . . . .	<i>Kansas City.</i>
Luckan, Charlotte Marguerite, . . . . .	Lawrence.
Lyon, Edna Charlotta, . . . . .	Lawrence.
Mackie, Elizabeth Elsie, . . . . .	Lawrence.
Messick, Lodema Zelida, . . . . .	Hill City.
Miller, Bess, . . . . .	El Dorado.
Miller, Frank Adam, . . . . .	<i>Kansas City.</i>
Morgan, Dorothy Margaret, . . . . .	Clay Center.
Murray, Pauline, . . . . .	Wellington.
McDaniel, Hazel Burnice, . . . . .	<i>McAlister, Okla.</i>

## FRESHMEN—concluded.

Olmstead, Mildred Frances,	Lawrence.
Petitt, Mildred Esther,	Peabody.
Porter, Jane Bruce,	Kansas City, Mo.
Renn, Edith Elizabeth,	Wellington.
Robertson, Lella Elizabeth,	Hulbert, Okla.
Royer, Clifford Fry,	Abilene.
Rudolph, Ruth Wilma,	Lawrence.
Ruth, Meta Freda,	Moundridge.
Shaffer, Susie,	Hays.
Shanklin, Flora,	Lawrence.
Smith, Charline,	Lawrence.
Smith, Etta Augusta,	Lawrence.
Smith, Frances Mildred,	Stockton.
Smith, Nettie Sylvia,	Smith Center.
Strahm, Estelle,	Sabetha.
Stubbs, Dena Katherine,	Lawrence.
Swayne, Ramona,	Wamego.
Sweeney, Ruth Rebekah,	Lawrence.
Terrell, Grace Juanita,	Gardner.
Trewoagy, Eleanor Griffin,	Lawrence.
Underwood, Addie,	Lawrence.
Wattles, Mary,	Wichita.
Whittemore, Anna,	Waterville.
Wilhelmi, Alwine,	Lawrence.
Wilson, Rhea Faye,	Columbus.
Yeager, Lillian,	Larned.
Zook, Mrs. Ruth Florence,	Wellington.

FRESHMEN, 82.

## SPECIAL.

Andrew, Beulah Maude,	Lawrence.
Andrews, Oliver Lewellyn,	Powhattan.
Apt, Elizabeth,	Iola.
Barkdull, Charles Leon,	Lawrence.
Barnett, William Quay,	Wichita.
Benkelman, George Albert,	St. Francis.
Bird, Anna Mae,	Great Bend.
Bitter, Vashti Cecillea,	Eureka.
Blackmar, Gertrude,	Lawrence.
Blesi, Catheryn Minnie,	Lawrence.
Bottiger, Florence Fern,	Sabetha.
Bower, Ruth,	Winfield.
Butts, Berenice Aileen,	Wichita.
Carson, Paul C.,	Ashland.
Clucas, Ruth,	Pueblo, Colo.
Coffman, Wilson R.,	Overbrook.
Cooper, Gertrude Helen,	Peabody.
Davies, R. H.,	Florence.
Dunlevy, Mabel Mary,	Parsons.
Eastman, Walter Maynard,	Lawrence.
Edie, Katie Ella,	Lebo.
Elliott, Gladys,	Lawrence.
Hamilton, Idyl Maud,	Weir.
Harper, Leta Maude,	Lawrence.
Harper, Margaret,	Gage, Okla.
Henry, Gladys Margaret,	Lawrence.
Hiatt, Patti,	Lawrence.
Hill, Helen,	Oswego.
Holcomb, Jessie,	Parsons.
Hoyt, Wm. Valentine,	Lawrence.
Husband, Agnes,	McPherson.
Johnson, John Carlisle,	Formoso.
Johnston, Annie Mosely,	Chapel Hill, N. C.
Kinne, Genevieve,	Lawrence.
Kirchoff, Lillian Helen,	Lawrence.
Klingberg, Wilbert, O.,	Osage City.
Kliphardt, Minnie Helen,	Eudora.
Kohman, Edward Frederick,	Dillon.
LaCoss, Louis,	Lawrence.

## SPECIAL—concluded.

Lamb, Ruth Sarah, . . . . .	Lawrence.
Lawrence, James Frank, . . . . .	Lawrence.
Long, Nina Jane, . . . . .	Madison.
Maddox, Rella Gertrude, . . . . .	Coffeyville.
Manley, Mildred Minnie, . . . . .	Iola.
Martin, Jessie June, . . . . .	Olds, Iowa.
Martin, Katherine Louise, . . . . .	Kansas City, Mo.
Martindell, Donald Cameron, . . . . .	Lawrence.
Mitchell, Hannah Eileen, . . . . .	Lawrence.
Mock, Benjamin Roy, . . . . .	Lawrence.
Murphy, Gertrude, . . . . .	Lawrence.
McMillan, Ellen Marguerite, . . . . .	Kansas City, Mo.
Nungesser, Ella, . . . . .	Lawrence.
Overstreet, Marea, . . . . .	Blue Rapids.
Parker, Clarence Clay Brooks, . . . . .	Liberty, Mo.
Perky, Grace Leila, . . . . .	Lawrence.
Petz, Gretchen, . . . . .	Windom.
Potter, Earl, . . . . .	Salina.
Pugh, Luella Patterson, . . . . .	Lawrence.
Rooney, Ellena Florence, . . . . .	Fairview.
Rowlands, Beatrice Arline, . . . . .	Lawrence.
Sanders, Hazel, . . . . .	Galena.
Schloss, Hazel Estella, . . . . .	Atchison.
Shearer, Adaline Jane, . . . . .	Kansas City, Mo.
Shklar, Tillie, . . . . .	Kiowa.
Shuey, Bertha Marie, . . . . .	Lawrence.
Singleton, Erma, . . . . .	Benedict.
Souders, Ruby M., . . . . .	Kingman.
Staton, Walter, . . . . .	Lawrence.
Stone, Marguerite Bernon, . . . . .	Kansas City, Mo.
Strickler, Elizabeth, . . . . .	Cherryvale.
Thurman, Phyllis, . . . . .	Altoona.
Tracy, Emma Margery, . . . . .	Moran.
Tripp, Lena, . . . . .	Lawrence.
Vawter, Mary Margaret, . . . . .	Oberlin.
Wiedemann, Louise Augusta, . . . . .	Lawrence.
Wilson, France Q., . . . . .	Abilene.



## School of Law.

## SENIORS.

Ahrens, Henry Edward J.,	Belleville.
Allphin, Harry Clark,	Leoti.
Andrew, Adelbert Owen,	Gardner.
Baer, Roy Harrison,	Ransom.
Baird, Spencer Lawrence,	Dodge City.
Bandel, Clarence Alexander,	Wamego.
Berry, Nathaniel Eichorn,	Waterville.
Brown, Raymond Clair,	Watonga, Okla.
Burgess, Harvey Albert,	Greensburg.
Callaway, Kathleen Margaret,	Greenleaf.
Cayot, Carl Donovan,	Westphalia.
Connally, John Leo,	Fort Scott.
Cosgrove, Michael Francis,	Hartford.
Deming, Claude E.,	Westmoreland.
Dennis, Fred Eugene,	Clovis, N. M.
Eyssen, Charles Raymond,	Independence.
Forbes, Benjamin N., jr.,	Wathena.
Friedman, Moe Lester,	Kansas City, Mo.
Grattan, James Edmund,	Sedgwick.
Haddock, Fred Theo.,	Kansas City, Mo.
Hanlon, Fred Benidick,	Coffeyville.
Ise, John,	Lawrence.
Jones, Richard Harold,	Kansas City, Mo.
Judy, Ernest Lee,	Kansas City.
King, Roscoe Leonard,	Marion.
Kupfer, Louis Reuben,	Lawrence.
Larson, Harold,	Vesper.
Lock, Maurice O.,	Emporia.
Marks, Henry Clay,	Lawrence.
McAdams, Arthur Marion,	Salina.
McMullen, Roy Joseph,	Great Bend.
Palmer, Thos. Potter,	Wamego.
Parker, Clement Arthur,	Kansas City, Mo.
Pepperell, Wm. Earl,	Concordia.
Power, John Byron,	Lawrence.
Rayfield, Franklin Johnson,	Horton.
Reid, Robert Johnson,	Howard.
Ross, John Warren,	Webber.
Schulman, Abram,	Garden City.
Shaw, Allan Reese,	Coffeyville.
Shetlar, Ray Johnson,	Conway Springs.
Smith, Omer DeWitt,	Cawker City.
Smith, Ralph Hewett,	Girard.
Smith, Verni L. C.,	Colby.
Spencer, Guy Albert,	Oakley.
Stubbs, Herbert White,	Lawrence.
Thompson, Andrew John,	Horton.
Thompson, Fred Marion,	Herington.
Watson, Raymond Etheridge,	Kansas City, Mo.
Wells, Frank L.,	Quinlan, Okla.
Wenger, Joseph Sylvester,	Russell.
Wilson, Erle H.,	Osawatomie.
Woods, Harry Lloyd,	Fulton.

SENIORS, 53.

## MIDDLES.

Babb, Benjamin Arthur,	Lawrence.
Beezley, George F.,	Girard.
Bond, James Edward,	Lawrence.
Brown, Harold Vane,	Parsons.
Campbell, Edgar Wells,	Seneca.
Collins, Percy Henry,	Belleville.

## MIDDLES—concluded.

Columbia, Elmer W., . . . . .	Chetopa.
Curtis, Charles Cleveland, . . . . .	Lawrence.
Darrrough, Rialdo Allen, . . . . .	<i>Kansas City, Mo.</i>
Davis, Ben Wesley, . . . . .	Eskridge.
Day, Vance Hinman, . . . . .	<i>Kansas City, Mo.</i>
Foulston, Robert Clare, . . . . .	Wichita.
Hamner, William Edward, . . . . .	Rosedale.
Hannah, Jay Ransom, . . . . .	<i>Tonkawa, Okla.</i>
Harlan, Harold Eugene, . . . . .	Larned.
Harrold, Clyde Bernard, . . . . .	Osawatomie.
Hill, George Thurman, . . . . .	Independence.
Hipple, Francis Eugene, . . . . .	Hutchinson.
Hoisington, Stanley Milo, . . . . .	Newton.
Israel, Ruby Carl, . . . . .	Wichita.
Jackman, Reginald Pritchard, . . . . .	Wichita.
Johnson, Alex, . . . . .	<i>Okmulgee, Okla.</i>
Jones, Ben S., . . . . .	Lyons.
Kabler, Levi Lilburn, . . . . .	Kingman.
Kates, Melvin J., . . . . .	Newton.
Frith, Gilbert Harvey, . . . . .	Emporia.
Lambert, Isaac E., jr., . . . . .	Emporia.
Little, George J., . . . . .	Carbondale.
Marshall, Ben H., . . . . .	Meade.
Martin, Merle Vandaveer, . . . . .	Hutchinson.
Martindell, Donald Cameron, . . . . .	Lawrence.
Masemore, Willits J., . . . . .	Sterling.
Miller, J. Earll, . . . . .	Lawrence.
Mounts, Dayton Ray, . . . . .	Lawrence.
Muir, Donald, . . . . .	Harper.
McIntosh, Richard Edgar, . . . . .	Burns.
Ott, Frederick William, . . . . .	Hamilton.
Owens, Robert Rohring, . . . . .	Horton.
Porter, Glenn, . . . . .	Viola.
Reeves, Lewis Tackett, . . . . .	Hutchinson.
Relihan, Terrence D., . . . . .	Smith Center.
Resler, Leland M., . . . . .	Chanute.
Rice, Walter Scott, . . . . .	Athol.
Roebke, Louis, . . . . .	Holton.
Sears, Burton Peabody, . . . . .	Lawrence.
Shawver, Karl Victor, . . . . .	Osawatomie.
Shiffler, Clinton Raymond, . . . . .	Girard.
Shinn, Byron Lee, . . . . .	Chanute.
Snyder, Ira Clarence, . . . . .	Stockton.
Swancara, Frank, . . . . .	Irving.
Swenson, Cleve Lidstone, . . . . .	Junction City.
Theis, Frank Albert, . . . . .	<i>Kansas City, Mo.</i>
Warner, Orville H., . . . . .	Garden City.
Welch, John Bonebrake, . . . . .	Hutchinson.
Wellhouse, William Earl, . . . . .	Topeka.
Wikoff, Howard H., . . . . .	Oneida.
Wilson, France Q., . . . . .	Abilene.
Woodbury, Charles Putnam, . . . . .	<i>Kansas City, Mo.</i>
Woodbury, Harold Hicks, . . . . .	<i>Kansas City, Mo.</i>

MIDDLES, 59.

## JUNIORS.

Adair, Hugh Rogers, . . . . .	Lawrence.
Alcorn, John Scott, . . . . .	<i>Bedford, Iowa.</i>
Alford, Hendry James, . . . . .	Lawrence.
Allen, William Albert, . . . . .	Lawrence.
Atkinson, George W., . . . . .	Pittsburg.
Baer, Milton David, . . . . .	Beloit.
Baird, William Enoch, . . . . .	Hallowell.
Barkdull, Charles Leon, . . . . .	Lawrence.
Beeson, Elwood Walter, . . . . .	Wichita.
Berger, Homer Hecker, . . . . .	<i>Kansas City.</i>
Bierer, Samuel, jr., . . . . .	Hiawatha.
Bischoff, George Dietrich, . . . . .	Washington.
Boehm, Walter, . . . . .	Hutchinson.

## JUNIORS—continued.

Bradley, John, . . . . .	Wellington.
Bramwell, Willis K., . . . . .	Belleville.
Brown, Mrs. Florence Marley, . . . . .	Olathe.
Brown, Loren Vaughn, . . . . .	Kansas City, Mo.
Burford, Lewis Wesley, . . . . .	Lawrence.
Cain, William Quiggan, . . . . .	Atchison.
Campbell, Robert James, . . . . .	Kansas City, Mo.
Carlton, Clarence Hays, . . . . .	Garden City.
Caswell, Arthur Bernard, . . . . .	Belleville.
Clark, Hal. LaSalle, . . . . .	Ottawa.
Clark, Russell H., . . . . .	Kansas City, Mo.
Clarke, Charles Williamson, . . . . .	Lawrence.
Codding, John Sullivan, . . . . .	Westmoreland.
Coen, John Ralph, . . . . .	Wichita.
Coffman, Wilson R., . . . . .	Overbrook.
Cowan, Herbert Melvin, . . . . .	Abilene.
Crandall, Harry Cecil, . . . . .	Little River.
Crossley, Alfred Benton, . . . . .	Topeka.
Daniels, Cady Lee, . . . . .	Kansas City, Mo.
Davis, Roy Clarence, . . . . .	Osage City.
Diechmann, Frederick A., . . . . .	Kansas City, Mo.
Delaney, Carl Andrew, . . . . .	Waterville.
Dietrich, Roy Kaiser, . . . . .	Kansas City, Mo.
Dolde, Henry Charles, . . . . .	Leavenworth.
Edmonson, Otis Milton, . . . . .	Winchester, Ill.
Edwards, Charles Leland, . . . . .	Hazelton.
Eisenmayer, Walter Charles, . . . . .	Springfield, Mo.
Ewald, Clem Howard, . . . . .	Lawrence.
Fast, Arthur Herman, . . . . .	Baldwin.
Ferguson, Harold Joseph, . . . . .	Wichita.
Fisher, Harry Wilfred, . . . . .	Pleasanton.
Forbes, John Mitchell, . . . . .	Lyndon.
Gephart, Jesse Thomas, . . . . .	Oskaloosa.
Gorsuch, Harris Foster, . . . . .	Sharon Springs.
Graham, Findley, . . . . .	Hiawatha.
Gribble, Ulysses Allison, . . . . .	Arkansas City.
Griffin, Walter T., . . . . .	Lawrence.
Guilfoyle, Matthew, . . . . .	Wamego.
Hamner, Leonard Walter, . . . . .	Hutchinson.
Harbeson, John Wesley, . . . . .	Stafford.
Hicks, Carl Sidney, . . . . .	Lawrence.
Hoffman, John Christian, . . . . .	Enterprise.
Holliday, George Alvan, . . . . .	Wellington.
Hyames, Frank M., . . . . .	Lawrence.
Iles, Edmiston Wyatt, . . . . .	Olathe.
Ireland, Clarence Leonodus, . . . . .	Holton.
Irwin, Edwin I., . . . . .	Guthrie, Okla.
Irwin, Ralph Alexis, . . . . .	Highland.
Jacks, Fred Wilson, . . . . .	Wichita.
Jacobs, John Clayton, . . . . .	Baldwin.
Jaggard, Herbert Phelps, . . . . .	Oakley.
Johnston, Robert King, . . . . .	Lawrence.
Jones, William I., . . . . .	Alma.
Keplinger, Lewis Wolfkill, . . . . .	Kansas City.
Kettler, Harry, . . . . .	Pittsburg.
Killarney, Earl, . . . . .	Atchison.
Koenigsdorf, Julius, . . . . .	Kansas City, Mo.
Konantz, Charles Lynn, . . . . .	Fort Scott.
Lamb, Carl Cranston, . . . . .	Dunlap.
Larson, Louis Elmer, . . . . .	Columbus.
Lindsay, Roy O., . . . . .	Gilman City, Mo.
Lynch, Joseph Elwood, . . . . .	Herington.
Magill, Robert Ward, . . . . .	Wichita.
Mahin, William E., . . . . .	Smith Center.
Malcolm, George Robert, . . . . .	Pittsburg.
Mattingly, Elmer Herbert, . . . . .	Sedan.
Miller, Geoffrey William, . . . . .	St. Marys.
Morrow, James Calvin, . . . . .	Washington.
Munson, Kenneth Oliver, . . . . .	Lawrence.

## JUNIORS—concluded.

McCarty, Alston Madden, . . . . .	Emporia.
McLain, Wray Ernest, . . . . .	Newton.
Nash, Robert Ervin, . . . . .	Ottawa.
Neibling, Carl Augustus, . . . . .	Holton.
Nesbitt, Frank W., . . . . .	Garnett.
Newcomb, Fred Salathiel, . . . . .	Burlington.
Norris, Wm. Sidney, . . . . .	Topeka.
O'Connor, Francis, . . . . .	Junction City.
Ogden, Raymond Clifton, . . . . .	Lawrence.
Overman, Elbert Leslie, . . . . .	Lawrence.
Phillips, Homer Lee, . . . . .	Wichita.
Probst, George Ernst, . . . . .	Arkansas City.
Rambo, Hal Fletcher, . . . . .	Ottawa.
Ready, J. Wendell, . . . . .	Wellington.
Richardson, George Crozier, . . . . .	Lawrence.
Rogers, Roy Edward, . . . . .	Bronson.
Roller, Harry F., . . . . .	Lawrence.
Scott, Lester J., . . . . .	Fort Scott.
Simmons, Kenneth Kipple, . . . . .	Baldwin.
Small, Elwood Lorenzo, . . . . .	Lawrence.
Smithmeyer, Fred Poehler, . . . . .	Lawrence.
Snyder, Harry Ernest, . . . . .	Dodge City.
Spotts, Ralph Hall, . . . . .	Lawrence.
Stephens, Charles Elmo, . . . . .	Kansas City, Mo.
Stephenson, Thomas James, . . . . .	Holton.
Stoll, Sam Brown, . . . . .	Atchison.
Stuewe, Edward William, . . . . .	Alma.
Thomas, Bradley Ambrose, . . . . .	Morrisville, Vt.
Thorn, Furman Thomas, . . . . .	Wellsville.
Trousdale, Walter Joseph, . . . . .	Newton.
Wallace, Clark A., . . . . .	Kingman.
Waring, Clarence L., . . . . .	Abilene.
Weede, Orlin Allbert, . . . . .	Atchison.
White, Malberne Hance, . . . . .	Pittsburg.
Wightman, Wade Walter, . . . . .	Wichita.
Wilhelm, Louis Robert, . . . . .	Lawrence.
Wilson, Jasper Byrd, . . . . .	Lawrence.
Wisdom, Glen Albert, . . . . .	Kansas City, Mo.
Woodard, Earle Morris, . . . . .	Wichita.
Woulfe, Robert, . . . . .	Newton.
Wyatt, Earl, . . . . .	Westmoreland.
Zoellner, Leslie Raymond, . . . . .	Tonganoxie.
Zook, Arthur David, . . . . .	Wellington.

JUNIORS, 125.

## SPECIAL.

Chandler, Wm. W., . . . . .	Lawrence.
Kelley, Lawrence Carlyle, . . . . .	Marion.
Kimball, Bruce Planck, . . . . .	Parsons.
Matkins, Benjamin Harrison, . . . . .	Lawrence.
Pardee, Benjamin Valentine, . . . . .	Baldwin.
Perkins, Rollin M., . . . . .	Lawrence.

SPECIALS, 7.



## School of Pharmacy.

### SENIORS.

Atchison, Harry Verner, . . . . .	Richmond.
Boal, Margaret E., . . . . .	Clifton.
Brown, John Andrew, . . . . .	Washington.
Carl, Paul Howard, . . . . .	Cherryvale.
Cookson, Ellis Wesley, . . . . .	Wichita.
Countryman, William Sherman, . . . . .	Wa Keeney.
Darst, Milford W., . . . . .	Caldwell.
Dillingham, Robert Kimball, . . . . .	Morland.
Hess, Ervin Russell, . . . . .	Ottawa.
Rankin, Floyd Velton, . . . . .	Clay Center.
Roose, Karl Louis, . . . . .	McCune.
Rohrer, William W., . . . . .	Edgerton.
Rowland, Frank E., . . . . .	Mulvane.
Savage, Walter Edward, . . . . .	Sabetha.
Stowe, Glen Allen, . . . . .	Longton.
Tripp, Newell Richard, . . . . .	Lawrence.
Varnum, Walter Howard, . . . . .	Lawrence.

SENIORS, 17.

### JUNIORS.

Attwood, Mary Ethel, . . . . .	Clay Center.
Battaile, Wm. Carmelich, . . . . .	Lawrence.
Benkelman, Charles Adam, . . . . .	St. Francis.
Berger, Samuel I., . . . . .	Medford.
Blades, James, . . . . .	Minneapolis.
Bradley, Harold, . . . . .	Caney.
Britt, Luther Talmage, . . . . .	Randlett, Okla.
Carpenter, Myron, . . . . .	Clearwater.
Conant, Roger Buckmaster, . . . . .	Dodge City.
Corbin, Lewis, . . . . .	Clearwater.
Cipra, Winslow Joseph, . . . . .	Holyrood.
Cramer, Charles C., . . . . .	Gardner.
DeVoe, Louis Jardine, . . . . .	Lawrence.
Early, James Bernard, . . . . .	Medford, Okla.
Etter, Ross Addison, . . . . .	McPherson.
Fitzpatrick, Russell Michael, . . . . .	Lawrence.
Fleming, Jesse James, . . . . .	Summerfield.
Fourd, James Silas, . . . . .	Kansas City, Mo.
Gray, Moses Nathaniel, . . . . .	Lawrence.
Hightower, Sylvester E., . . . . .	Kansas City.
Humes, George Markley, . . . . .	Bunker Hill.
Jones, Arthur Francis, . . . . .	Moline.
Killian, Bruce, . . . . .	Gardner.
Kuebler, Leon, . . . . .	Gridley.
Lightner, Jean, . . . . .	Bucklin.
Mattson, Lillie Merle, . . . . .	Elsmore.
May, Nick Joseph, . . . . .	Andale.
Metz, LeRoy, . . . . .	Sabetha.
Mitchell, Robert Earl, . . . . .	Caney.
Morris, Clay Ira, . . . . .	Valley Center.
Mossman, Harry Ellis, . . . . .	Ocheltree.
Murphy, George Anthony, . . . . .	Wichita.
Nash, Robert Erwin, . . . . .	Ottawa.
Patterson, Curtis John, . . . . .	Oskaloosa.
Peel, Warren Freeman, . . . . .	Pratt.
Puckett, Thomas Marshall, . . . . .	Galena.
Purcell, Audray Lavery, . . . . .	Leavenworth.
Ricketts, Fred Harvey, . . . . .	Springhill.
Romigh, Harry William, . . . . .	Valley Center.
Schlupp, Benjamin Gordon, . . . . .	Bern.
Sherrard, Olive Elizabeth, . . . . .	Kansas City, Mo.
Simmons, Jerry Glathart, . . . . .	Lawrence.

## JUNIORS—concluded.

Smith, Ernest Rolland, . . . . .	Hartford.
Smith, Lynn, . . . . .	Springhill.
Steel, Edward R., . . . . .	Kansas City, Mo.
Stockton, Raymond, . . . . .	Rosedale.
Tompkins, John Cheatham, . . . . .	Topeka.
Trotter, Claude Houston, . . . . .	Kansas City.
Wedel, Milford Norman, . . . . .	Moundridge.

JUNIORS, 49.

## SOPHOMORES.

Etter, Ross Addison, . . . . .	McPherson.
Gleed, Clarence Augusta, . . . . .	Lawrence.
Hampton, John Morris, . . . . .	Colby.
Monroe, Forest Herbert, . . . . .	Eudora.
Mullen, Cyrus Arthur, . . . . .	Conway Springs.
Parker, Henry Charles, . . . . .	Bonner Springs.
Plotner, Charles Henry, . . . . .	Bonner Springs.
Venerable, Conquest Blaine, . . . . .	Argentine.

SOPHOMORES, 8.

## FRESHMEN.

Lewellen, Willard, . . . . .	Gaylord.
Marcy, Joseph Ferdinand, . . . . .	Concordia.
Wheeler, Jesse Francis, . . . . .	Russell.

FRESHMEN, 3.

## SPECIAL.

Adair, William Wallace, . . . . .	Lawrence.
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SPECIAL, 1.

## School of Medicine.

### SENIORS.

Anderson, Bertha Olive, . . . . .	Lawrence.
Barrett, Frank Edward, . . . . .	Kansas City.
Bigger, John Dinsmore, . . . . .	<i>Dade City, Fla.</i>
Brownlee, John, . . . . .	Lawrence.
Culver, Carl Calvin, . . . . .	Yates Center.
Eltling, Kate Hardenbergh, . . . . .	Ness City.
Gilliland, Charles Edward, . . . . .	<i>Kansas City, Mo.</i>
Hissem, Ralph Waldo, . . . . .	Ellsworth.
Knappenberger, George Edwin, . . . . .	Kingman.
Myers, Elmer Allen, . . . . .	Clay Center.
Norton, Howard George, . . . . .	<i>Kansas City, Mo.</i>
Padfield, Robert Elmer, . . . . .	Hutchinson.
Powell, Fred C., . . . . .	Macksville.
Prather, Benton T., . . . . .	Wichita.
Roberts, Sam Earl, . . . . .	Concordia.
Smith, Roy Kenneth, . . . . .	Lincoln.
Stevenson, Earl Onnie, . . . . .	Altamont.
Teachenor, Frank Randall, . . . . .	<i>Kansas City, Mo.</i>
Van Atta, John Robert, . . . . .	Beloit.

SENIORS, 19.

### JUNIORS.

Brakebill, Martin Luther, . . . . .	Savonburg.
Demand, John Wesley, . . . . .	Wichita.
Demand, Milton Henry, . . . . .	Wichita.
Dennie, Charles Clayton, . . . . .	Hillsdale.
Finney, Guy, . . . . .	Wamego.
Fitzsimons, Wm. T., . . . . .	<i>Kansas City, Mo.</i>
Flack, Frank LeRoy, . . . . .	Longton.
Gibson, Edward Thomas, . . . . .	Kansas City.
Hecker, Friedrich Alexander, . . . . .	<i>Kansas City, Mo.</i>
Hyde, Ida H., . . . . .	Lawrence.
Magill, Clyde, . . . . .	Andover.
Mills, Roy Fallas, . . . . .	Lawrence.
McCarty, Virgil Warren, . . . . .	La Harpe.
Owens, Patrick Henry, . . . . .	Chanute.
Sevin, Omar Richard, . . . . .	Kansas City.
Wohler, Paul Reinhard, . . . . .	Topeka.

JUNIORS, 16.

### SOPHOMORES.

Aschmann, Theodore Henry, . . . . .	Inman.
Barber, Marshall Albert, . . . . .	Rosedale.
Cook, Jesse Derickson, . . . . .	Topeka.
Curl, Howard E., . . . . .	Osborne.
Fowler, Lillian Edith, . . . . .	Lawrence.
Gruber, Charles Merle, . . . . .	Hope.
John, Henry, . . . . .	Caldwell.
Jolley, Frank James, . . . . .	Topeka.
Langenwalter, John Emil, . . . . .	Halstead.
Maple, Frank Fulton, . . . . .	Perth.
Moon, Virgil Holland, . . . . .	Emporia.
Myers, Joseph Wakefield, . . . . .	Galva.
Osborne, Harry Levi, . . . . .	Nickerson.
Quiring, Walter Otto, . . . . .	Newton.
Simon, William E., . . . . .	Garnett.
Smith, Delbert O., . . . . .	Minneapolis.
Springer, Murl Preston, . . . . .	<i>Tulsa, Okla.</i>
Wright, George Leroy, . . . . .	Lawrence.

SOPHOMORES, 18.

## FRESHMEN.

Adams, Eldridge Stevens, . . . . .	Atchison.
Alexander, Homer Augustus, . . . . .	Nickerson.
Belding, Frank McCormick, . . . . .	Pleasanton.
Berger, Harry Calvin, . . . . .	Halstead.
Campbell, Watson, . . . . .	Attica.
Carson, Paul C., . . . . .	Ashland.
Cook, Ward Hance, . . . . .	Lawrence.
Curtis, Paul Everard, . . . . .	Lawrence.
Earnest, Clarence, . . . . .	Washington.
Ewald, Paul Peter, . . . . .	Lawrence.
Foncannon, Frank, . . . . .	Emporia.
Greene, Linden Wells, . . . . .	Kansas City.
Hamilton, William Oliver, . . . . .	Lawrence.
Henshall, James Edgar, . . . . .	Osborne.
Hill, Thomas Newton, . . . . .	Elk Falls.
Hoffman, Robert Lee, . . . . .	Ellsworth.
Hoskins, Elmer Ray, . . . . .	Lawrence.
Hunt, Claude Judson, . . . . .	Oswego.
Johnson, John Carlisle, . . . . .	Formoso.
Kubik, Charles S., . . . . .	Caldwell.
LeMoine, Albert Napoleon, . . . . .	Concordia.
Leventhal, Benjamin Heim, . . . . .	Rosedale.
Maxwell, Herbert Spencer, . . . . .	Braddyville, Ia.
Miller, Warren Mahlon, . . . . .	Sabetha.
Monahan, Elmer Perry, . . . . .	Baldwin.
McGill, Lucien Robert, . . . . .	Hill City.
Sheppard, Cyril E., . . . . .	Wellsville.
Trump, Frank Austin, . . . . .	Formoso.
Wallace, M. Edna, . . . . .	Stafford.
Wheeler, LeRoy Jay, . . . . .	Wa Keeney.
White, Edwin Clay, . . . . .	Kansas City, Mo.
Wilburn, Homer Vernon, . . . . .	Independence.

FRESHMEN, 32.

## Training School for Nurses.

## CLASS OF 1911.

Brown, Katherine, . . . . .	Hays.
Cummings, Lora, . . . . .	Kansas City, Mo.
Hamilton, Ada, . . . . .	Partridge.
Wood, Daisy, . . . . .	Parsons.

CLASS OF 1911, 4.

## CLASS OF 1912.

Alfrey, Kate, . . . . .	Winona.
Anthony, Frances Ruth, . . . . .	Nortonville.
Blunt, Norma, . . . . .	Greeley.
Fox, Hope, . . . . .	Caldwell.
Hemphill, Pansy, . . . . .	Lawrence.
Kjellander, Beda, . . . . .	Kansas City.
Roberts, Nelle R., . . . . .	Caldwell.
Taylor, Mabel, . . . . .	Sedgwick.

CLASS OF 1912, 8.

## CLASS OF 1913.

Bates, Mary K., . . . . .	Garden City.
Carter, Marian, . . . . .	Warsaw, Mo.
Leonard, Lulu, . . . . .	Earlton.

CLASS OF 1913, 3.



## Summer Session.

Abernathy, James Logan, <i>Chemistry, Geometry,</i>	Kansas City, Mo.
Adams, Eldridge Stevens, <i>Chemistry, Shop,</i>	Atchison.
Addams, Helen T., <i>English, Education,</i>	Belleville.
Alford, Sylvia.	Lawrence.
Allison, Laurena M., <i>Chemistry, Mathematics,</i>	Lawrence.
Altman, Clifford Ashton, <i>Chemistry,</i>	Emporia.
Anderson, Agnes Anna, <i>Chemistry, Botany,</i>	Baldwin.
Angevine, Leland Charles, <i>Mathematics,</i>	Lawrence.
Ashbaugh, Reginald J., <i>Physics,</i>	Lawrence.
Ayer, Earl J., <i>Mech. Drawing,</i>	Kansas City, Mo.
Bach, Emma, <i>German, French,</i>	Lawrence.
Bacon, Martha M., <i>Pathology,</i>	Kansas City.
Baird, Brownlee, <i>English, Sociology,</i>	Centralia.
Baird, Maude, <i>History, Mathematics, Botany,</i>	Clay Center.
Baird, W. Enoch, <i>Law, Economics,</i>	Columbus.
Barber, Nettie W., <i>Latin, History, English,</i>	
<i>Economics,</i>	Kirwin.
Barker, M. G., <i>Mathematics,</i>	Lecompton.
Battaile, John F., <i>Mathematics, History, English,</i>	Lawrence.
Batthey, Lita A., <i>English,</i>	Powhattan.
Beal, A. Floyd, <i>Physics, History, Economics,</i>	Lawrence.
Beamon, Mabel, <i>English,</i>	Paola.
Bell, Alice Knisely, <i>Math., French, Sociology,</i>	Ottawa.
Berry, Nathaniel Eichorn, <i>Law,</i>	Waterville.
Berthot, Stephanie A., <i>Mathematics,</i>	Le Loup.
Biddison, Marcia Dorothea, <i>Geology, English,</i>	Goodland.
Blair, J. Will, <i>German, French,</i>	Topeka.
Blair, Streeter, <i>Latin,</i>	Spring Hill.
Bloxom, Mattie, <i>English, Education, Phys. Edu.,</i>	Independence.
Boener, Edith Maria, <i>Economics,</i>	Midland.
Bond, James E., <i>Economics,</i>	Lawrence.
Bonney, Julia K., <i>German,</i>	Rosedale.
Booth, Herbert R., <i>Philosophy, Sociology,</i>	Hamilton, Mo.
Booth, Ida L., <i>English,</i>	Reading.
Bower, Ross William, <i>Shop,</i>	Ottawa.
Bozell, Leo B., <i>French,</i>	Beloit.
Boyd, Ellinor Fitzgerald, <i>Education, Botany,</i>	
<i>German, Philosophy,</i>	Coffeyville.
Breidenthal, Maurice L., <i>Entomology,</i>	Kansas City.
Briggs, Ruby Iola, <i>English, Education,</i>	Lawrence.
Broek, Grace Ivy, <i>German, History,</i>	Lawrence.
Broeker, Fritz Graf, <i>Engineering,</i>	Lawrence.
Brook, Bessie Cable, <i>Hist., Socio. and Econ., Latin,</i>	Blue Mound.
Brooks, Martin Kahao, <i>French, Latin, Phys. Edu.,</i>	Lawrence.
Brown, Amy Crawford, <i>German, Latin,</i>	Sterling.
Brown, Ernest S., <i>Eng., Socio. and Econ., Phil.,</i>	Hutchinson.
Brown, Glenn Orrin, <i>Physics,</i>	Newton.
Brown, R. C., <i>Law,</i>	Watonga, Okla.
Buchanan, Nellie Rece, <i>Geology,</i>	Lawrence.
Buckles, E. S. J., <i>Mathematics, English,</i>	Ames.
Burgess, Florence, <i>German,</i>	Mulvane.
Burk, Christina, <i>Philosophy,</i>	Ottawa.
Burke, Josephine, <i>Pharmacy,</i>	Weir.
Burns, Ira Burrton, <i>History,</i>	Minneapolis.
Buzick, Alonzo R., <i>Socio. and Econ., English,</i>	Lawrence.
Cadwell, Louie, <i>Math., History,</i>	Ellsworth.
Calderhead, Iris G., <i>English,</i>	Marysville.
Carpenter, Margaret, <i>English,</i>	Oswego.
Carson, Paul C., <i>Chemistry,</i>	Ashland.
Carter, Marcia Wood, <i>Shop,</i>	Lawrence.
Chesky, Victor Ernest, <i>Botany,</i>	Nickerson.
Clark, Carl, <i>Entomology,</i>	Meriden.
Clarke, Alice Mary, <i>Latin,</i>	Seneca.
Clawson, Ben J., <i>Zoölogy,</i>	Oskaloosa.

Clement, Homer James, <i>Education</i> , . . . . .	Lawrence.
Clifford, Sarah M., <i>English, French</i> , . . . . .	Kansas City.
Clyde, Nathana Lore, <i>English, Philosophy</i> , . . . . .	Kansas City.
Coe, John Edwin, <i>Botany, Chem.</i> , . . . . .	Dodge City.
Collins, Annie, <i>Latin, English</i> , . . . . .	McPherson.
Cook, Julius Edgar, <i>Education, Hist., Philosophy</i> , . . . . .	Ness City.
Corcoran, John P., <i>Socio. and Econ., Botany</i> , . . . . .	Lawrence.
Cowan, Herbert Melvin, <i>History, Sociology</i> , . . . . .	Abilene.
Cowell, Wm. H., <i>Chemistry</i> , . . . . .	Lawrence.
Cox, Carrie, <i>Mathematics, Sociology</i> , . . . . .	Lawrence.
Crego, Lura Agnes, <i>Education, English</i> , . . . . .	Burlington.
Cressman, Edmund Dresser, <i>Latin</i> , . . . . .	Lawrence.
Cupp, Chas. D., <i>Pharmacy, Anatomy</i> , . . . . .	Lawrence.
Curran, John Halliday, <i>Geology, Socio. and Econ.</i> , . . . . .	Pittsburg.
Dalby, Nora E., <i>Entomology, English</i> , . . . . .	Sterling.
Dalton, Nellie Marvin, <i>Geology, Botany</i> , . . . . .	Lawrence.
Dart, Edna, . . . . .	Lawrence.
Davis, Hiram Carleton, <i>Law</i> , . . . . .	Wichita.
Davis, Nettie M., <i>Botany, Mathematics, Phys. Ed.</i> , . . . . .	Valley Falls.
DeLay, Florence G., <i>English, Education, Shop</i> , . . . . .	Parsons.
Deming, Claude E., <i>Law</i> , . . . . .	Westmoreland.
Dershem, Elsie, <i>English</i> , . . . . .	Baldwin.
Devore, R. E., <i>Law, Socio. and Econ.</i> , . . . . .	Lawrence.
Dillard, Mary J., <i>English, Phys. Ed.</i> , . . . . .	Lawrence.
Dolbee, Cora, <i>English, Latin</i> , . . . . .	Lawrence.
Doty, Claude, <i>French</i> , . . . . .	Hoisington.
Doty, Eula, <i>English</i> , . . . . .	Larned.
Douglass, Leslie Mattison, <i>Chemistry</i> , . . . . .	Lawrence.
Doyle, Lewis C., <i>Mathematics</i> , . . . . .	Kingman.
Dreier, Albert A., <i>History, Sociology</i> , . . . . .	Randolph.
Dubach, Clotilde, <i>German</i> , . . . . .	Sabetha.
Eddy, Carl Gates, <i>Law, Sociology</i> , . . . . .	Colby.
Edgerton, Oliver Paul, <i>History</i> , . . . . .	Randolph.
Elder, Edward S., <i>Law</i> , . . . . .	Cour d'Alene, Idaho.
Elliott, Gladys E., <i>French</i> , . . . . .	Lawrence.
Ellis, Pearl, . . . . .	El Dorado.
Emery, Elizabeth, <i>Latin, English</i> , . . . . .	Mulvane.
Emery, Walter Titus, <i>Entomology</i> , . . . . .	Wetmore.
Emmett, Louis H., <i>Shop</i> , . . . . .	Lawrence.
Engelhart, Mildred, <i>Latin, French</i> , . . . . .	White Cloud.
Erwin, Grace, <i>English, Botany</i> , . . . . .	Kinsley.
Ferreira, May, <i>Latin</i> , . . . . .	Kansas City.
Fleming, Louise, <i>Mathematics</i> , . . . . .	Tecumseh.
Folks, Ray Jesse, <i>Chemistry</i> , . . . . .	Lawrence.
Foote, Chappell, <i>Mathematics, Physics</i> , . . . . .	Topeka.
Forrey, Ira H., <i>Chemistry</i> , . . . . .	Lincoln Center.
Foulston, Robert C., <i>Law</i> , . . . . .	Wichita.
Fowler, Lulu, Ethel, <i>Mathematics</i> , . . . . .	Lawrence.
Francis, Parker Browne, <i>Pharmacy</i> , . . . . .	Kansas City.
Fraser, Roy, <i>Entomology</i> , . . . . .	Galetta, Ontario, Canada.
Frederick, Nora E., <i>Botany, Education, English</i> , . . . . .	Arcadia.
Freeland, Ralph Lin, <i>Shop</i> , . . . . .	Burns.
Gambill, Wm. G., <i>Education, Socio. and Econ.</i> , . . . . .	Tonganoxie.
Garrison, Effie M., <i>English, Mathematics</i> , . . . . .	Paxico.
Garret, Clyda, . . . . .	Bonner Springs.
Gephart, Jesse Thomas, <i>Education</i> , . . . . .	Oskaloosa.
Gibbon, Will O., <i>Botany, Mech. Drawing</i> , . . . . .	Halstead.
Godfrey, Truman M., <i>Engineering</i> , . . . . .	Lawrence.
Gowans, Harry Wilson, <i>Law</i> , . . . . .	Lawrence.
Green, Bessie B., <i>Socio., Math., Education</i> , . . . . .	Coffeyville.
Green, Harry Hudson, <i>Law</i> , . . . . .	Garnett.
Gregory, Arthur P., <i>Philosophy</i> , . . . . .	Beloit.
Gregory, Roy M., <i>Mathematics</i> , . . . . .	White Church.
Grey, Frances, . . . . .	Lawrence.
Griffin, Edith, <i>Economics</i> , . . . . .	Lawrence.
Griffiths, Glendale, <i>English, Philosophy</i> , . . . . .	Lawrence.
Grignard, Emile E., <i>Engineering</i> , . . . . .	Lawrence.
Guffler, Augusta, <i>Piano</i> , . . . . .	Lawrence.
Gunthorp, Horace, <i>Zoölogy</i> , . . . . .	Winfield.
Gustafson, Alma, <i>Mathematics, Mech. Draw.</i> , . . . . .	Lawrence.
Gustafson, Mary, <i>Mathematics, Education</i> , . . . . .	Lawrence.

Gustafson, Tekla Cecelia, <i>Education, German, Phil., Socio.,</i>	Lawrence.
Hackbusch, Dorothea, <i>History, German, Shop,</i>	Leavenworth.
Hackbusch, Florentine, <i>Latin,</i>	Leavenworth.
Hague, Florence Sander, <i>Edu., Shop, Phys. Ed.,</i>	Lawrence.
Hall, Earl C., <i>Botany,</i>	Lawrence.
Hall, Hazel, <i>Entomology,</i>	Eureka.
Hamilton, William Oliver, <i>Chemistry, Anatomy,</i>	Lawrence.
Hanson, Anton, <i>Chemistry, Mech. Drawing,</i>	Jamestown.
Harper, Margaret,	Lawrence.
Harrington, George Leonard, <i>Pathology,</i>	Kansas City, Mo.
Harris, Eleanora, <i>Education,</i>	Hutchinson.
Harrison, Bert D., <i>Pharmacy,</i>	Atchison.
Harshberger, Audrey,	Lawrence.
Haverkamp, Wm. A., <i>Edu., Phil., Socio., Econ.,</i>	Lawrence.
Hays, Mrs. Estelle, <i>Education,</i>	Baldwin.
Hazlett, O. E., <i>Education, Sociology,</i>	Augusta.
Henry, Gladys, <i>Piano,</i>	Lawrence.
Hepworth, R. F. H., <i>Law, Phil.,</i>	Burlingame.
Hess, Ervin R., <i>Pharmacy,</i>	Ottawa.
Hess, Ethel,	Alma.
Hess, John A., <i>German, French,</i>	Lawrence.
Heuser, Chester Henry, <i>French,</i>	Fort Scott.
Hinesley, Alice, <i>Piano,</i>	Lawrence.
Hinkson, Guy, <i>Socio. and Econ. Edu., History,</i>	Lawrence.
Hoisington, Stanley Milo, <i>History,</i>	Newton.
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Horner, Robert Messenger, <i>Chemistry,</i>	Sterling.
Hoskins, Elmer Ray, <i>Philosophy,</i>	Dorrance.
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Hull, Blanche Edith, <i>Botany,</i>	Lawrence.
Hull, Eva Pearl, <i>Botany, Phys. Edu.,</i>	Lawrence.
Humphrey, Irvin Wesley, <i>German, Botany,</i>	Russell.
Hungerford, Herbert B., <i>Entomology,</i>	Lawrence.
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Hyames, F. M., <i>Law,</i>	La Harpe.
Hyre, Florence,	Lawrence.
Ice, Ellen, <i>History,</i>	Lawrence.
Isaac, Ferdinand J., <i>Chemistry,</i>	Moundridge.
Ise, John, <i>Law, Socio. and Econ.,</i>	Lawrence.
Ise, Mary, <i>Latin, Botany, Socio. and Econ.,</i>	Lawrence.
Ise, Walter J., <i>Law,</i>	Lawrence.
Jackman, Reginald Pritchard, <i>Law,</i>	Wichita.
Jennings, Henry Ralph, <i>Entomology,</i>	McPherson.
John, Henry, <i>Chemistry, History,</i>	Lawrence.
Johns, Floyd M., <i>English,</i>	Glasco.
Johnson, C. E., <i>Chem.,</i>	Lawrence.
Johnson, Clifford P., <i>Math., Botany, Phys. Edu.,</i>	Lawrence.
Johnson, Everett W., <i>Geology, Math.,</i>	Coffeyville.
Johnson, Lucetta, <i>English, Latin,</i>	Wichita.
Johnston, Arthur,	Lawrence.
Jones, Hattie,	Sunny Side.
Jones, J. Wilbur, <i>French, Law, Socio. and Econ.,</i>	Kansas City.
Jones, Louis T., <i>History, Economics,</i>	Mahaska.
Jordan, May, <i>English,</i>	Lawrence.
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Kenney, Ruth, <i>History,</i>	Lawrence.
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Ketels, Marie,	Lawrence.
Kezer, Chas. Leonard, <i>Education, German, Econ.,</i>	Stillwater, Okla.
Kiefer, Norman, <i>Botany,</i>	Lawrence.
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Klingburg, Wilbert,	Osage City.
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Krehbiel, August R., <i>Education, German,</i>	Lawrence.
Kreider, Charles Cottier, <i>Chemistry,</i>	Lawrence.
Kreider, Lucile, <i>Shop, Phys. Edu.,</i>	Lawrence.

Lambert, Isaac E., <i>Law</i> , . . . . .	Emporia.
Laming, Edith, <i>German</i> , . . . . .	Lawrence.
Landers, Harriet, <i>Botany</i> , . . . . .	Blue Rapids.
Lane, Oscar Jasper, <i>Botany, Entomology</i> , . . . . .	Baldwin.
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Lehman, Harvey C., <i>Sociology and Economics</i> , . . . . .	
<i>Physical Edu.</i> , . . . . .	Humboldt.
Lewin, Murielle, <i>German, Latin</i> , . . . . .	Lindsborg.
Lichtenwalter, Homer O., <i>Mathematics</i> , . . . . .	McPherson.
Lindsey, Lola E., <i>English, Botany</i> , . . . . .	Cherryvale.
Lohrenz, Anna Friesen, <i>German, Sociology</i> , . . . . .	Hillsboro.
Lohrenz, Henry W., <i>Entomology</i> , . . . . .	Hillsboro.
Louderback, Harley Crosby, <i>Spanish</i> , . . . . .	Denton.
Luther, Ethel, <i>Education, English</i> , . . . . .	Kansas City.
Madden, Pauline, <i>Education</i> , . . . . .	Lawrence.
Madison, Fred Harold, <i>French, German, Latin</i> , . . . . .	Kansas City, Mo.
Maffet, Maud A., <i>Latin</i> , . . . . .	Lawrence.
Malcolm, George Robert, <i>Law, Socio. and Econ.</i> , . . . . .	Pittsburg.
Mangelsdorf, Albert Henry, <i>Shop</i> , . . . . .	Atchison.
Marks, H. Clay, <i>Law</i> , . . . . .	Lawrence.
Martin, Ransom M., <i>Mathematics</i> , . . . . .	Herington.
Martindale, Nell, <i>Education, English, Phys. Edu.</i> , . . . . .	Lawrence.
Martindell, Donald C., <i>Law</i> , . . . . .	Lawrence.
Maughlin, Lenore, <i>History, English</i> , . . . . .	Lawrence.
Mayer, Walter C., <i>Philosophy</i> , . . . . .	Keats.
Messenheimer, Alberta, . . . . .	Lawrence.
Meyer, Ethel B., <i>German</i> , . . . . .	Rosedale.
Middleton, Marie, . . . . .	Lawrence.
Miles, Kate B., <i>Latin, English</i> , . . . . .	Salina.
Miller, Alice May, <i>English</i> , . . . . .	Lawrence.
Miller, Anna L., <i>Medicine</i> , . . . . .	Lawrence.
Miller, Bessie, . . . . .	El Dorado.
Miller, Geoffery Wm., <i>Law</i> , . . . . .	St. Marys.
Miller, J. Earl, <i>Law</i> , . . . . .	Lawrence.
Miller, Marie Blanche, <i>English</i> , . . . . .	Leavenworth.
Miller, Pearl De Ette, <i>History</i> , . . . . .	El Dorado.
Moore, Lelia Z., <i>Latin, English</i> , . . . . .	Holton.
Moriarty, Katherine Ida, <i>Mathematics, English</i> , . . . . .	Wamego.
Morris, Inez, <i>Education, Mathematics</i> , . . . . .	Tecumseh.
Morton, Winifred, <i>Socio., Edu., Eng., Phys. Edu.</i> , . . . . .	Atchison.
Motz, Frank, <i>Hist., Socio., English, Socio. and Economics</i> , . . . . .	Hays.
Mounts, Dayton R., <i>Law</i> , . . . . .	Lawrence.
Mundell, Walter N., <i>Anatomy</i> , . . . . .	Lawrence.
Murphey, George Robert, <i>Geometry, Engineering, Phys. Ed., Shop</i> , . . . . .	Oklahoma City, Okla.
Murphy, George Anthony, <i>Chemistry</i> , . . . . .	Wichita.
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McCanles, Lulu, . . . . .	Lawrence.
McConnell, Margaret, <i>German</i> , . . . . .	Lyndon.
McCullough, Irene Agnes, <i>Chemistry</i> , . . . . .	Frankfort.
McGill, Lucien Robert, <i>Geology, Botany</i> , . . . . .	Hill City.
McIntosh, Richard Edgar, <i>Law</i> , . . . . .	Burns.
McKittrick, Bessie J., <i>Education, Mathematics, English, Philosophy</i> , . . . . .	Wilson.
Nabb, George Dennis, <i>Geology</i> , . . . . .	Baldwin.
Nicolet, Ben Harry, <i>Chemistry</i> , . . . . .	Kansas City, Mo.
Noftzger, Millicent, <i>Education, English</i> , . . . . .	Anthony.
Nolan, Helen, <i>English, Sociology and Economics</i> , . . . . .	Lamont.
Nystrom, Clifford Wm., <i>Chemistry</i> , . . . . .	North Topeka.
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Olson, Henry N., <i>Mechanics</i> , . . . . .	Lindsborg.
Ott, Fred W., <i>Law</i> , . . . . .	Hamilton.
Owens, Henry Patrick, <i>Pathology</i> , . . . . .	Chanute.



Palmer, S. LaVern, <i>Chem., Physics</i> , . . . . .	Hutchinson.
Parker, Clement Arthur, <i>Law</i> , . . . . .	Kansas City, Mo.
Pauly, Howard C., <i>Spanish, Shop</i> , . . . . .	Kansas City, Mo.
Peairs, Ruth, . . . . .	Lawrence.
Pendleton, Claudia C., <i>English</i> , . . . . .	Lawrence.
Pendleton, Helen, . . . . .	Lawrence.
Pendleton, Laura, <i>Piano</i> , . . . . .	Lawrence.
Penny, Charles Elmore, <i>Latin, German, Botany</i> , . . . . .	Lawrence.
Petit, LeRoy Harry, <i>English</i> , . . . . .	Holton.
Phenice, Mary K., <i>English, Sociology</i> , . . . . .	Reno.
Phillips, Helen, <i>English, Shop</i> , . . . . .	Lawrence.
Pickens, Minnie Laura, <i>Philosophy</i> , . . . . .	Lawrence.
Prunty, Merle C., <i>English, German, Phys. Edu.</i> , . . . . .	Seneca.
Pyle, Glenn L., <i>Chemistry</i> , . . . . .	Coldwater,
Randel, Lulu, <i>Education, English</i> , . . . . .	Corning.
Rankin, Roy, <i>Botany</i> , . . . . .	Caney.
Ravenscraft, Ruby, <i>Education, Sociology</i> , . . . . .	Ashland.
Rearick, Anna J., <i>German, Philosophy</i> , . . . . .	Lawrence.
Reed, J. C., <i>Botany, Education, Phys. Edu.</i> , . . . . .	Salina.
Reed, Olive L., <i>Philosophy</i> , . . . . .	Ottawa.
Rees, W. G., <i>Law, Socio. and Econ.</i> , . . . . .	Meriden.
Reynolds, Cora, . . . . .	Lawrence.
Riney, Arthur Herbert, <i>Chemistry</i> , . . . . .	Dodge City.
Rishel, Wilmot Martin, <i>Botany</i> , . . . . .	Garden City.
Roach, Myrtle, <i>German, Philosophy</i> , . . . . .	Coffeyville.
Robb, William Selden, <i>History, Phil., Education, Socio. and Econ.</i> , . . . . .	Eureka.
Roberts, John Wilkins, <i>Education, Phil., Socio. and Econ.</i> , . . . . .	Peabody.
Rohrer, Inez, <i>English, Socio. and Econ.</i> , . . . . .	Lawrence.
Rohrer, Lillian, <i>German</i> , . . . . .	Lawrence.
Root, C. Burton, <i>Zoölogy, Anatomy</i> , . . . . .	Lawrence.
Rupe, Wm. Stephen, <i>Hist., Socio. and Econ.</i> , . . . . .	Morrill.
Rush, Margaret, <i>Education</i> , . . . . .	Eureka.
Samson, Mary B., <i>English</i> , . . . . .	La Cygne.
Savage, Anna Elizabeth, <i>French, Eng., History</i> , . . . . .	Lawrence.
Schaich, Emma, <i>Latin</i> , . . . . .	Kansas City.
Schimmel, Clara Frances, <i>German</i> , . . . . .	Leavenworth.
Schmalzried, Mary D., <i>Hist., Eng., Education</i> , . . . . .	McPherson.
Schroeder, Clara, <i>French, Economics</i> , . . . . .	Enid, Okla.
Schroeder, Jacob P., <i>Phil., Education, Botany</i> , . . . . .	McPherson.
Scott, Harry Murphy, <i>Shop, Mech. Drawing</i> , . . . . .	Lawrence.
Seeley, George L., <i>History, Socio. and Econ.</i> , . . . . .	Sterling.
Senior, Mary Belle, <i>Education, English</i> , . . . . .	Lawrence.
Sharp, Richard Woods, <i>Mathematics, Spanish</i> , . . . . .	Topeka.
Shaw, Esther, . . . . .	Lawrence.
Shaw, Laurenia Merrine, <i>English, German</i> , . . . . .	Lawrence.
Sherwood, Noble P., <i>Botany</i> , . . . . .	Lawrence.
Shiffler, Clinton Raymond, <i>Law</i> , . . . . .	Girard.
Shippy, Harvey, <i>Education, Mathematics</i> , . . . . .	Chapman.
Shuey, Marie, . . . . .	Lawrence.
Shuey, Ralph C., <i>French, Chemistry</i> , . . . . .	Lawrence.
Slagle, Merle C., <i>Entomology</i> , . . . . .	Wheeler.
Smith, Mrs., <i>Piano</i> , . . . . .	Lawrence.
Smith, Chas. I., <i>Philosophy, Geology, Education</i> , . . . . .	Oneida.
Smith, Edna M., <i>Education, English</i> , . . . . .	Smith Center.
Smith, Elsie Louise, <i>Education, Philosophy</i> , . . . . .	Leavenworth.
Smith, Etta A., <i>German</i> , . . . . .	Lawrence.
Smith, Gilbert R., <i>Mathematics, Shop</i> , . . . . .	Lawrence.
Spangler, Adolph J., <i>Entomology</i> , . . . . .	Lawrence.
Spencer, Guy A., <i>Law</i> , . . . . .	Oakley.
Spotts, Ralph Hall, <i>Law</i> , . . . . .	Lawrence.
Spray, Lindley Murray, <i>Physics, Philosophy</i> , . . . . .	Lawrence.
Spray, Ruth G., <i>Chemistry</i> , . . . . .	Lawrence.
Stanton, Guy K., <i>Zoölogy</i> , . . . . .	Lawrence.
Starkweather, Nida, . . . . .	Lawrence.
Staton, Etta, <i>Voice and Piano</i> , . . . . .	Lawrence.
Steele, Mabel Lenore, <i>English</i> , . . . . .	Valley Fall.
Steeper, Thomas P., <i>Shop</i> , . . . . .	Lawrence.
Sterling, Genevieve, . . . . .	Lawrence.
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Stewart, Theodosia, <i>Hist., English, Math.</i> , . . . . .	Hazleton.
Stockton, Frank Webb, <i>Botany</i> , . . . . .	Fredonia.
Stone, Sadie Melinda, <i>English</i> , . . . . .	Lawrence.
Stroud, Everett, <i>English, Hist., Socio. and Ecqn.</i> , . . . . .	Soldier.
Stuart, Geraldine, <i>History</i> , . . . . .	Lawrence.
Stubbs, Herbert White, <i>Law</i> , . . . . .	Lawrence.
Stuwe, Edward W. A., <i>Shop</i> , . . . . .	Alma.
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Sweet, Lindley, <i>Shop</i> , . . . . .	Lawrence.
Taylor, Edward H., <i>Zoölogy</i> , . . . . .	Richmond.
Taylor, Genevieve, <i>Education, Philosophy</i> , . . . . .	Iola.
Taylor, Ruby, <i>Latin, Economics, Phil., Education</i> , . . . . .	Fort Scott.
Teeter, Edna, <i>History, Latin</i> , . . . . .	Lawrence.
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Terry, George L., <i>Law</i> , . . . . .	Spring Hill.
Thiele, Walter G., <i>Law</i> , . . . . .	Washington.
Thomas, Ethel, <i>English, Latin, Phys. Edu.</i> , . . . . .	Ellsworth.
Thornton, Ruby Clarke, <i>History, Latin</i> , . . . . .	Atchison.
Tripp, Lena, <i>Piano</i> , . . . . .	Lawrence.
Trowbridge, Harry Martin, <i>Socio., Phil., Econ.</i> , . . . . .	Kansas City.
Turner, Mabel O., <i>English, German, Phys. Edu.</i> , . . . . .	Effingham.
Van den Broek, John A., <i>Chemistry</i> , . . . . .	Lawrence.
Van Dyke, Clarence O., <i>Math.</i> , . . . . .	Woodston.
Varner, Nellie, <i>Piano</i> , . . . . .	Lawrence.
Walker, Mrs. P. F., <i>German</i> , . . . . .	Lawrence.
Walthour, Roy L., <i>Mathematics, Mech. Drawing</i> , . . . . .	Newton.
Walton, Lorene, . . . . .	North Lawrence.
Walton, Nan Edgarine, <i>English</i> , . . . . .	Leavenworth.
Watkins, Mabel O., <i>Education, Math., English</i> , . . . . .	Lawrence.
Wenrich, Christine, . . . . .	Lawrence.
Wetmore, Frank Alexander, <i>Zoölogy</i> , . . . . .	Lawrence.
Wheeler, Mary Strever, <i>Education</i> , . . . . .	Lawrence.
Wiedemann, Louise, <i>Piano</i> , . . . . .	Lawrence.
Wilkinson, Edith L., <i>Botany, Zoölogy</i> , . . . . .	Muskogee, Okla.
Williams, Isaac N., <i>Law</i> , . . . . .	Attica.
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Williamson, Bertha Blanche, <i>Latin</i> , . . . . .	Ottawa.
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Wilson, Elizabeth K., <i>Spanish</i> , . . . . .	Kansas City, Mo.
Withington, Charles H., <i>Zoölogy</i> , . . . . .	Emporia.
Withington, Georgia, <i>Sociology, Hist., Phil.</i> , . . . . .	Allen.
Worden, David Ernest, <i>Entomology</i> , . . . . .	Wellington.
Work, Roy Y., <i>English, Philosophy, Phys. Edu.</i> , . . . . .	Ellsworth.
Wright, Cowles, <i>English</i> , . . . . .	Lawrence.
Wright, Ida B., <i>English</i> , . . . . .	Lawrence.
Yeoman, Don O., <i>Phys. Edu., Physics</i> , . . . . .	Kingman.
Young, Ben Pierce, <i>Education, Math., Phys. Edu., Physics</i> , . . . . .	Halstead.
Zahnley, James Walter, <i>Physics, Botany</i> , . . . . .	Dwight.
Zabel, W. L., <i>Sociology, Economics</i> , . . . . .	Lawrence.
Zoellner, Leslie R., <i>Socio. and Econ., History</i> , . . . . .	Tonganoxie.
Zook, Nettie, <i>Latin, Education</i> , . . . . .	Fort Scott.

# Summary of Enrollment.

## 1910-'11.

SCHOOLS.	Men.	Women.	Total.
<b>The Graduate School.</b>	<b>101</b>	<b>55</b>	<b>156</b>
Summer Session, 1910.....	33	26	59
Regular Session.....	68	29	97
<b>The College of Liberal Arts and Sciences.</b>	<b>584</b>	<b>560</b>	<b>1,143</b>
Senior Class.....	106	89	195
Junior Class.....	88	114	202
Sophomore Class.....	128	141	269
Freshman Class.....	191	167	358
Unclassed Students.....	71	49	120
<b>The School of Engineering.</b>	<b>435</b>		<b>435</b>
Senior Class.....	78		78
Junior Class.....	69		69
Sophomore Class.....	119		119
Freshman Class.....	150		150
Specials.....	19		19
<b>The School of Fine Arts.</b>	<b>28</b>	<b>196</b>	<b>224</b>
Senior Class.....	1	23	24
Junior Class.....		15	15
Sophomore Class.....	1	26	27
Freshman Class.....	6	76	82
Specials.....	20	56	76
<b>The School of Law.</b>	<b>242</b>	<b>2</b>	<b>244</b>
Senior Class.....	52	1	53
Middle Class.....	59		59
Junior Class.....	124	1	125
Specials.....	7		7
<b>The School of Pharmacy.</b>	<b>73</b>	<b>5</b>	<b>78</b>
Senior Class.....	16	1	17
Junior Class.....	45	4	49
Sophomore Class.....	8		8
Freshman Class.....	3		3
Specials.....	1		1
<b>The School of Medicine.</b>	<b>80</b>	<b>19</b>	<b>99</b>
Fourth Year.....	17	2	19
Third Year.....	15	1	16
Second Year.....	17	1	18
First Year.....	31	1	32
Nurses.....		15	15
<b>Total Enrollment Regular Session.</b>	<b>1,542</b>	<b>838</b>	<b>2,378</b>
Names counted twice.....	142	60	220
	<b>1,400</b>	<b>778</b>	<b>2,176</b>
<b>The Summer Session.....</b>	<b>204</b>	<b>186</b>	<b>390</b>
Current Students in Summer Session.....	98	70	168
	<b>106</b>	<b>116</b>	<b>222</b>
<b>Total Registration, 1910-'11.</b>	<b>1,506</b>	<b>892</b>	<b>2,398</b>

## Classification of Students.

### BY KANSAS COUNTIES.

Allen .....	18	Greenwood .....	14	Ottawa .....	13
Anderson .....	18	Hamilton .....	1	Pawnee .....	8
Atchison .....	26	Harper .....	11	Phillips .....	4
Barber .....	6	Harvey .....	36	Pottawatomie .....	19
Barton .....	13	Jackson .....	23	Pratt .....	8
Bourbon .....	28	Jefferson .....	16	Rawlins .....	4
Brown .....	32	Jewell .....	6	Reno .....	33
Butler .....	33	Johnson .....	35	Republic .....	13
Chase .....	5	Kingman .....	13	Rice .....	28
Chautauqua .....	3	Kiowa .....	4	Riley .....	10
Cherokee .....	23	Lane .....	1	Rooks .....	6
Cheyenne .....	5	Labette .....	37	Rush .....	5
Clark .....	6	Leavenworth .....	40	Russell .....	13
Clay .....	17	Lincoln .....	7	Saline .....	8
Cloud .....	18	Linn .....	13	Scott .....	3
Coffey .....	10	Logan .....	5	Sedgwick .....	56
Comanche .....	3	Lyon .....	24	Seward .....	1
Cowley .....	25	Marion .....	18	Shawnee .....	51
Crawford .....	26	Marshall .....	25	Sheridan .....	1
Decatur .....	3	McPherson .....	28	Sherman .....	2
Dickinson .....	44	Meade .....	4	Smith .....	14
Doniphan .....	9	Miami .....	22	Stafford .....	6
Douglas* .....	617	Mitchell .....	11	Sumner .....	28
Edwards .....	3	Montgomery .....	39	Thomas .....	4
Elk .....	8	Morris .....	8	Trego .....	4
Ellis .....	4	Morton .....	26	Wabaunsee .....	10
Ellsworth .....	16	Nemaha .....	31	Wallace .....	3
Finney .....	7	Neosho .....	18	Washington .....	16
Ford .....	12	Ness .....	3	Wichita .....	1
Franklin .....	26	Norton .....	4	Wilson .....	14
Geary .....	14	Osage .....	16	Woodson .....	2
Gove .....	1	Osborne .....	8	Wyandotte .....	110
Graham .....	3				

\* A large number of students whose names appear in this catalogue as residents of Douglas county are so catalogued because they temporarily reside in Lawrence for the purpose of attending the University.

### CLASSIFICATION BY STATES.

California .....	3	Kansas .....	2132	Oklahoma .....	34
Canada .....	2	Kentucky .....	1	Pennsylvania .....	1
Colorado .....	9	Mexico .....	1	Russia .....	1
Cuba .....	1	Michigan .....	1	Texas .....	3
Florida .....	1	Missouri .....	178	Utah .....	1
Holland .....	1	Montana .....	1	Virginia .....	2
Idaho .....	1	New Mexico .....	4	Vermont .....	2
Illinois .....	5	New Jersey .....	1		
Indiana .....	1	New York .....	3		
Iowa .....	7	North Carolina .....	1		
				Total .....	2398



## Acknowledgments.

Gifts to the Library, March, 1910, to January, 1911.

	<i>Vols.</i>
Allaben, Frank, New York City.....	2
American Bar Association.....	1
American Museum of Natural History, New York City.....	1
Bates, Prof. F. G., Lawrence.....	1
Bennett, Rev. F. M., Lawrence.....	33
Bergen, Dr. Alfred, Lindsborg.....	1
Blackmar, Prof. F. W., Lawrence.....	1
Board of Railroad Commissioners, Boston, Mass.....	3
Boyle, J. E., Grand Forks, North Dakota.....	1
Braun Corporation, Los Angeles, Cal.....	1
Bristow, Hon. J. L., Washington, D. C.....	6
Bureau of Railway Economics.....	1
Burten-Opitz, Mrs. R., New York City.....	1
Carruth, Prof. W. H., Lawrence.....	1
Cassen, H. N., Pine Hill, New York City.....	1
Cohen, Max M., Kansas City, Mo.....	1
Connecticut Railroad Commissioners, Hartford, Conn.....	2
Davis, Theodore M., Newport, Rhode Island.....	5
Department of Education, Ontario.....	9
Dunlap, Prof. C. G., Lawrence.....	2
Fry, H. P., Philadelphia, Pa.....	1
Galloo, Miss Eugenie, Lawrence.....	4
Georgia State Geologist, Atlanta, Ga.....	3
Hawley, F. B.....	1
Interstate Commerce Commission, Washington, D. C.....	3
Iowa Railroad Commission, Des Moines, Ia.....	1
Kansas Bureau of Labor and Industry, Topeka.....	3
Kansas Secretary of State, Topeka.....	3
Kansas State Agricultural College, Manhattan.....	8
Kansas State Historical Society, Topeka.....	3
Library of Congress, Washington, D. C.....	3
Library of the University of Michigan, Ann Arbor, Mich.....	2
McChurg, A. C. & Co., Chicago, Ill.....	2
Manley, M. G., Lawrence.....	5
Naval Observatory, Washington, D. C.....	2
New Jersey State Geologist, Trenton, N. J.....	1
New York State Educational Department, Albany, N. Y.....	1
Parmelee, Prof. M. F., Lawrence.....	5
President Lake Forest College, Lake Forest, Ill.....	4
Prudential Insurance Company of America, Newark, N. J.....	1
Sayre, Prof. L. E., Lawrence.....	3
Schirmer, G., New York City.....	2
Smithsonian Institution, Washington, D. C.....	1
Waylen, Mr. Hector.....	1
Wisconsin Railroad Commissioners.....	6

## Newspapers and Periodicals.

### DAILIES.

Abilene Daily Reflector.....	Abilene.
Arkansas City Daily Traveler.....	Arkansas City.
Atchison Daily Champion.....	Atchison.
Augusta Daily Gazette.....	Augusta.
Beloit Daily Call.....	Beloit.
Beloit Daily Gazette-Times.....	Beloit.
Chanute Daily Tribune.....	Chanute.
Clay Center Dispatch.....	Clay Center.
Coffeyville Daily Journal.....	Coffeyville.
Daily Blade.....	Concordia.
Daily Journal.....	Cherryvale.
Daily Republican.....	Cherryvale.
Daily Republican.....	Clay Center.
Daily Telegram.....	Garden City.
El Dorado Republican.....	El Dorado.
Emporia Gazette.....	Emporia.
Evening Free Press.....	Winfield.
Evening Herald.....	Ottawa.
Evening Kansas Republican.....	Newton.
Evening Star.....	Independence.
Evening Telegram.....	Garden City.
Fort Scott Daily Republican.....	Fort Scott.
Fort Scott Daily Tribune-Monitor.....	Fort Scott.
Galena Evening Times.....	Galena.
Garnett Evening News.....	Garnett.
Great Bend Daily Tribune.....	Great Bend.
Humboldt Daily Herald.....	Humboldt.
Hutchinson Daily News.....	Hutchinson.
Hutchinson Gazette.....	Hutchinson.
Independence Daily Reporter.....	Independence.
Iola Daily Register.....	Iola.
Kansas City Journal.....	Kansas City, Mo.
Kansas City (Kan.) Post.....	Kansas City.
Kansas City Star and Times.....	Kansas City, Mo.
Lawrence Daily Democrat.....	Lawrence.
Lawrence Daily Gazette.....	Lawrence.
Lawrence Daily Journal.....	Lawrence.
Lawrence Daily World.....	Lawrence.
Leavenworth Post.....	Leavenworth.
Leavenworth Times.....	Leavenworth.
McPherson Daily Republican.....	McPherson.
Neodesha Daily Sun.....	Neodesha.
Parsons Daily Eclipse.....	Parsons.
Parsons Daily Sun.....	Parsons.
Salina Daily Union.....	Salina.
Salina Evening Journal.....	Salina.
Tacoma Daily Tribune.....	Tacoma.
Topeka Daily Capital.....	Topeka.
Topeka State Journal.....	Topeka.
Wichita Beacon.....	Wichita.
Wichita Eagle.....	Wichita.
Winfield Daily Courier.....	Winfield.

### WEEKLIES.

Abilene Democrat.....	Abilene.
Abilene Weekly Chronicle.....	Abilene.
Advocate.....	El Dorado.
Advocate-Democrat.....	Marysville.
A. H. T. A. Weekly News.....	St. Paul.
Allen Enterprise.....	Allen.
Alma Enterprise.....	Alma.

## WEEKLIES—continued.

Alma Signal .....	Alma.
America; a Catholic Review (Prof. J. D. Newton, Lawrence) .....	New York N. Y.
American Economist .....	New York, N. Y.
Americus Greeting .....	Americus.
Anthony Republican .....	Anthony.
Appeal to Reason .....	Girard.
Argentine Republic .....	Argentine.
Argonia Clipper .....	Argonia.
Arkansas Valley Farmer .....	Wichita.
Atchison Church Visitor .....	Atchison.
Atchison Weekly Globe .....	Atchison.
Atlanta Journal .....	Atlanta.
Barber County Index .....	Medicine Lodge.
Barnard Bee .....	Barnard.
Barnes Chief .....	Barnes.
Barton County Democrat .....	Great Bend.
Baxter Springs News .....	Baxter Springs.
Beaver Valley Booster .....	Cedar Bluffs.
Belle Plaine News .....	Belle Plaine.
Belleville Telescope and Belleville Freeman .....	Belleville.
Belpre Bulletin .....	Belpre.
Better Way .....	Minneapolis.
Bison Bee .....	Bison.
Bluff City News .....	Bluff City.
Bonner Springs Chieftain .....	Bonner Springs.
Boston Common .....	Boston, Mass.
Breeder's Gazette .....	Chicago, Ill.
Bucklin Banner .....	Bucklin.
Burden Times .....	Burden.
Burlingame Enterprise .....	Burlingame.
Burlington Republican .....	Burlington.
Burns Citizen .....	Burns.
Burr Oak Herald .....	Burr Oak.
Bushton News .....	Bushton.
Caldwell Advance .....	Caldwell.
Caldwell News .....	Caldwell.
Caney Chronicle .....	Caney.
Caney News .....	Caney.
Cassoday Times .....	Cassoday.
Catholic Advance .....	Wichita.
Cawker City Leader .....	Cawker City.
Cawker City Public Record .....	Cawker City.
Central Baptist .....	St. Louis, Mo.
Centralia Journal .....	Centralia.
Central Kansas Democrat .....	Lyons.
Chanute Times .....	Chanute.
Chapman Advertiser .....	Chapman.
Chapman Gazette .....	Chapman.
Chase County Leader .....	Cottonwood Falls.
Cheney Sentinel .....	Cheney.
Cherokee County Republican .....	Baxter Springs.
Cherokee Sentinel .....	Cherokee.
Chetopa Advance .....	Chetopa.
Chetopa Clipper .....	Chetopa.
Cheyenne County Citizen .....	St. Francis.
Christian Companion .....	Wichita.
Christian Register .....	Boston, Mass.
Christian Science Sentinel .....	Boston, Mass.
Clafin Clarion .....	Clafin.
Clark County Clipper .....	Ashland.
Clay Center Dispatch .....	Clay Center.
Clay Center Times .....	Clay Center.
Coldwater Sun-Star .....	Coldwater.
Coldwater Talisman .....	Coldwater.
Columbus Advocate .....	Columbus.
Commoner .....	Lincoln, Neb.
Comet .....	Courtland.
Conway Springs Star .....	Conway.

## WEEKLIES—continued.

Council Grove Republican.....	Council Grove.
County Capital .....	St. John.
Courier-Democrat .....	Seneca.
Cuba Daylight .....	Cuba.
Delphos Republican .....	Delphos.
Democrat .....	McPherson.
Democrat .....	Wichita.
Democratic Messenger .....	Eureka.
Der Deutsche Westen.....	McPherson.
Der Herald .....	Newton.
De Soto Eagle Eye.....	De Soto.
Dexter Dispatch .....	Dexter.
Dickinson County News.....	Abilene.
Dodge City Kansas Journal.....	Dodge City.
Douglass Tribune .....	Douglass.
Downs News .....	Downs.
Downs Times .....	Downs.
Dresden Sunflower .....	Dresden.
Eagle-Plaindealer .....	Garnett.
Effingham New Leaf.....	Effingham.
El Dorado Republican .....	El Dorado.
Elk City Sun.....	Elk City.
Elk County Citizen.....	Howard.
Ellinwood Leader .....	Ellinwood.
Ellis County News .....	Ellis.
Ellis Review-Headlight.....	Ellis.
Ellsworth Messenger .....	Ellsworth.
Emporia Journal .....	Emporia.
Enterprise Push .....	Enterprise.
Erie Record .....	Erie.
Erie Sentinel .....	Erie.
Eskridge Tribune-Star .....	Eskridge.
Eudora Weekly News.....	Eudora.
Eureka Herald .....	Eureka.
Everest Enterprise .....	Everest.
Fairview Enterprise .....	Fairview.
Farm, Field and Garden.....	London, England.
Farmer and Stockman.....	Kansas City, Mo.
Farmer's Star and Live Stock Inspector.....	Wichita.
Farmer's Mail and Breeze.....	Topeka.
Farmer's Voice .....	Clyde.
Florence Bulletin .....	Florence.
Fort Leavenworth News .....	Fort Leavenworth.
Fort Riley Guidon.....	Fort Riley.
Fourth Estate .....	New York, N. Y.
Frederick News .....	Frederick.
Fredonia Herald .....	Fredonia.
Galena Republican .....	Galena.
Garden City Herald.....	Garden City.
Garden City Imprint.....	Garden City.
Garden City Prolocutor.....	Garden City.
Gardner Gazette .....	Gardner.
Garnett Journal .....	Garnett.
Geneseo Post .....	Geneseo.
Girard Press .....	Girard.
Girard Times .....	Girard.
Girls' Companion .....	Wichita.
Glasco Sun .....	Glasco.
Goff Advance .....	Goff.
Goodland Republican .....	Goodland.
Gove County Advocate.....	Quinter.
Grant County Republican.....	Ulysses.
Great Bend Tribune.....	Great Bend.
Greenleaf Sentinel .....	Greenleaf.
Greensburg Republican .....	Greensburg.
Grenola Republican .....	Grenola.
Gridley Light .....	Gridley.
Haddam City Clipper.....	Haddam.
Hamilton Grit .....	Hamilton.



WEEKLIES—*continued.*

Hanover Herald .....	Hanover.
Harper Advocate .....	Harper.
Harper Sentinel .....	Harper.
Haskell County Republican-Monitor .....	Santa Fe.
Havensville Review .....	Havensville.
Haviland Onlooker .....	Haviland.
Hays City Republican .....	Hays City.
Hays Free Press .....	Hays City.
Herald of Gospel Liberty .....	Dayton, Ohio.
Herington Times .....	Herington.
Herndon Nonpareil .....	Herndon.
Hill City New Era .....	Hill City.
Hillsboro Journal .....	Hillsboro.
Hillsboro Vorwärts .....	Hillsboro.
Holton Recorder .....	Holton.
Holton Signal .....	Holton.
Holyrood Banner .....	Holyrood.
Horton Commercial .....	Horton.
Howard Courant .....	Howard.
Hoxie Sentinel .....	Hoxie.
Hoyt Sentinel .....	Hoyt.
Hudson Patriot .....	Hudson.
Hugoton Hermes .....	Hugoton.
Humboldt Herald .....	Humboldt.
Humboldt Union .....	Humboldt.
Huron Herald .....	Huron.
Hutchinson Wholesaler .....	Hutchinson.
Illustrated London News (Mrs. J. H. Chalkley, Lawrence) .....	London, England.
Independent .....	Attica.
Independent .....	Burlington.
Independent (Prof. E. H. S. Bailey, Lawrence) ..	New York, N. Y.
Independent .....	White Water.
Industrialist .....	Manhattan.
Indian Leader .....	Haskell.
Inman Review .....	Inman.
Irving Leader .....	Irving.
Isabel Herald .....	Isabel.
Jacksonian .....	Cimarron.
Jefferson County Tribune .....	Oskaloosa.
Jetmore Republican .....	Jetmore.
Jewell County Monitor .....	Mankato.
Junction City Republic .....	Junction City.
Junction City Sentinel .....	Junction City.
Junction City Union .....	Junction City.
Kanopolis Journal .....	Kanopolis.
Kansas Agriculturist .....	Wamego.
Kansas Commoner .....	Wichita.
Kansas Democrat .....	Hiawatha.
Kansas Farmer .....	Topeka.
Kansas Issue .....	Topeka.
Kansaske Rozhledy .....	Wilson.
Kansas Optimist .....	Jamestown.
Kansas Prohibitionist .....	Osborne.
Kansas Star .....	Olathe.
Kansas Worker .....	Topeka.
Kearny County Advocate .....	Lakin.
Kensington Mirror .....	Kensington.
Key .....	Hiawatha.
Kingman Journal .....	Kingman.
Kinsley Graphic .....	Kinsley.
Kinsley Mercury .....	Kinsley.
Kiowa County Signal .....	Greensburg.
Kiowa News-Review .....	Kiowa.
Kirwin Kansan .....	Kirwin.
Labor Chronicle .....	Leavenworth.
Labor Leader .....	Baltimore, Md.
Labor Record .....	Kansas City, Mo.
La Crosse Republican .....	La Crosse.

## WEEKLIES—continued.

La Cygne Weekly Journal.....	La Cygne.
La Cygne Weekly Record.....	La Cygne.
Larned Chronoscope .....	Larned.
Lawrence Germania .....	Lawrence.
Leader Tribune .....	Englewood.
Leavenworth Tribune .....	Leavenworth.
Lebo Enterprise .....	Lebo.
Lebo Star .....	Lebo.
Lecompton Sun .....	Lecompton.
Lenora News .....	Lenora.
Le Roy Comment .....	Le Roy.
Lincoln Republican .....	Lincoln.
Lincoln Sentinel .....	Lincoln.
Lindsborg News .....	Lindsborg.
Lindsborg's Posten .....	Lindsborg.
Lindsborg Record .....	Lindsborg.
Linn County Democrat and Torch of Liberty....	Mound City.
Linn County Republic.....	Mound City.
Little River Monitor.....	Little River.
Logan County News.....	Winona.
Logan Herald .....	Logan.
Logan Republican .....	Logan.
Long Island New Leaf.....	Long Island.
Longton Gleaner .....	Longton.
Louisburg Herald .....	Louisburg.
Louisville Lyre .....	Louisville.
Lucas Independent .....	Lucas.
Lyons Republican .....	Lyons.
McCune Herald .....	McCune.
McDonald News .....	McDonald.
McLouth Times .....	McLouth.
McPherson Freeman .....	McPherson.
McPherson Weekly Republican.....	McPherson.
Manhattan Mercury .....	Manhattan.
Manhattan Nationalist .....	Manhattan.
Manhattan Republic .....	Manhattan.
Marion Record .....	Marion.
Marion Review .....	Marion.
Marquette Tribune .....	Marquette.
Marshall County News .....	Marysville.
Meade County News .....	Meade.
Meade Globe .....	Meade.
Medicine Lodge Crescent .....	Medicine Lodge.
Melvorn Review .....	Melvorn.
Menlo Enterprise .....	Menlo.
Meriden Ledger .....	Meriden.
Miami Republican .....	Paola.
Minneapolis Messenger .....	Minneapolis.
Minneapolis Progress .....	Minneapolis, Minn.
Missouri Valley Farmer .....	Topeka.
Moran Herald .....	Moran.
Morganville Tribune .....	Morganville.
Morrill Weekly News.....	Morrill.
Morris County Advance .....	Council Grove.
Moundridge Journal .....	Moundridge.
Mound Valley Herald .....	Mound Valley.
Mound Valley Journal.....	Mound Valley.
Mulberry News .....	Mulberry.
Mulvane News .....	Mulvane.
Municipal Record .....	San Francisco, Cal.
Muscotah Record .....	Muscotah.
Mystic Worker .....	Polo, Ill.
Narka News .....	Narka.
Natoma Independent .....	Natoma.
Neodesha Register .....	Neodesha.
Neosho Falls Post.....	Neosho Falls.
Ness County Echo.....	Ness City.
Ness County News.....	Ness City.
Nene Kansas Staats Zeitung.....	Kansas City.

WEEKLIES—*continued.*

News Chronicle .....	Scott City.
Newton Journal .....	Newton.
Nickerson Argosy .....	Nickerson.
Norcatur Register .....	Norcatur.
Norton Champion .....	Norton.
Norton County News.....	Norton.
Norton Courier .....	Norton.
Oakland Blade .....	Oakland.
Oakley Graphic .....	Oakley.
Oberlin Eye .....	Oberlin.
Oberlin Times .....	Oberlin.
Oketo Eagle .....	Oketo.
Olathe Mirror .....	Olathe.
Olathe Register .....	Olathe.
Olpe Optimist .....	Olpe.
Opinion .....	McPherson.
Osage City Free Press.....	Osage City.
Osage City Public Opinion.....	Osage City.
Osage County Chronicle.....	Burlingame.
Osage County Republican.....	Burlingame.
Osawatomie Globe .....	Osawatomie.
Osawatomie Graphic .....	Osawatomie.
Osborne County Farmer.....	Osborne.
Osborne County News.....	Osborne.
Oskaloosa Independent .....	Oskaloosa.
Oskaloosa Times .....	Oskaloosa.
Oswego Democrat .....	Oswego.
Ottawa Guardian .....	Ottawa.
Ottawa Weekly Herald.....	Ottawa.
Overbrook Citizen .....	Overbrook.
Outlook (Mrs. J. H. Chalkley).....	New York.
Oxford Register .....	Oxford.
Palmer Index .....	Palmer.
Parker Message .....	Parker.
People's Herald .....	Lyndon.
People's Reveille .....	Hill City.
People's Sentinel .....	Glen Elder.
People's Voice .....	Wellington.
Perry Mirror .....	Perry.
Phillips County Post.....	Phillipsburg.
Pittsburg Kansan .....	Pittsburg.
Plaindealer .....	Topeka
Plains Journal .....	Plains.
Plains News .....	Plains.
Plainville Times .....	Plainville.
Pleasanton Enterprise .....	Pleasanton.
Pleasanton Herald .....	Pleasanton.
Pleasanton Observer .....	Pleasanton.
Pratt Republican .....	Pratt.
Pratt Union .....	Pratt.
Press .....	Kansas City.
Price Current .....	Wichita.
Primitive Christianity .....	Wichita.
Protection Post .....	Protection.
Public (E. E. Soderstrom, Emporia).....	Chicago.
Quinter Semi-Weekly Advocate.....	Quinter.
Randolph Enterprise .....	Randolph.
Rawlins Bulletin .....	Atwood.
Republic City News .....	Republic.
Republic County Democrat.....	Belleville.
Robinson Index .....	Robinson.
Rooks County Record.....	Stockton.
Rooks County Republican.....	Stockton.
Rush Center Breeze .....	Rush Center.
Russell Record .....	Russell.
Sabetha Herald .....	Sabetha.
Sabetha Star .....	Sabetha.
Saint Francis Herald.....	Saint Francis.
St. John Weekly News.....	St. John.

## WEEKLIES—continued.

St. Marys Eagle-Journal.....	St. Marys.
St. Marys Star.....	St. Marys.
Salina Sun .....	Salina.
Santa Fe Monitor .....	Santa Fe.
Savonburg Record .....	Savonburg.
Scammon Miner .....	Scammon.
Scott City News-Chronicle.....	Scott City.
Scottsville Advance .....	Scottsville.
Searchlight .....	Wichita.
Seattle Union Record.....	Seattle, Wash.
Sedan Lance .....	Sedan.
Selden Independent .....	Selden.
Severance News .....	Severance.
Sharon Springs Western Times.....	Sharon Springs.
Smith County Journal .....	Smith Center.
Smith County Messenger.....	Smith Center.
Smith County Pioneer.....	Smith Center.
Soldier Clipper .....	Soldier.
Solomon Tribune .....	Solomon.
South Kansas Tribune.....	Independence.
Spearville News .....	Spearville.
Spring Hill New Era.....	Spring Hill.
Stafford Courier .....	Stafford.
Stafford County Republican.....	Stafford.
Stanton County Herald.....	Johnson.
Sterling Bulletin .....	Sterling.
Sterling Farm Journal .....	Sterling.
Stark News .....	Stark.
Strong City News-Courant.....	Strong City.
Summerfield Sun .....	Summerfield.
Sylvan Grove News.....	Sylvan Grove.
Sylvia Sun .....	Sylvia.
Syracuse Journal .....	Syracuse.
Thayer News .....	Thayer.
Times .....	Independence.
Times .....	Wathena.
Topeka Plaindealer .....	Topeka.
Transcript .....	Easton.
Trego County Reporter.....	Wa Keeney.
Tyro Republican .....	Tyro.
Udall News .....	Udall.
Udall Times .....	Udall.
Union Signal .....	Evanston, Ill.
United Presbyterian .....	Pittsburg, Pa.
Utica Enterprise .....	Utica.
Valley Falls Farmer's Vindicator.....	Valley Falls.
Valley Falls New Era.....	Valley Falls.
Vanguard .....	St. Louis, Mo.
Wallace Times .....	Wallace, Idaho.
Waldron Argus .....	Waldron.
Walnut Valley Times .....	Walnut Valley.
Wamego Weekly Times.....	Wamego.
Washington Palladium .....	Washington.
Washington Republican-Register .....	Washington.
Wathena Republican .....	Wathena.
Waterville Telegraph .....	Waterville.
Waverly Gazette .....	Waverly.
Weekly Kansas Chief.....	Troy.
Weekly Kansas Republican .....	Newton.
Weir City Journal.....	Weir City.
Wellsville Globe .....	Wellsville.
Western Advocate .....	Mankato.
Western Chemist and Metallurgist.....	Denver, Colo.
Western Herald .....	Jetmore.
Western Kansas World.....	Wa Keeney.
Western Spirit .....	Paola.
Westmoreland Recorder .....	Westmoreland.
Westmoreland Signal .....	Westmoreland.
Williamsburg Star .....	Williamsburg.



## WEEKLIES—concluded.

Wilson County Citizen.....	Fredonia.
Wilson Echo .....	Wilson.
Woodruff Budget .....	Woodruff.
World Brotherhood .....	Bellevue.
Wyandotte Herald .....	Kansas City.
Woodson County Advocate.....	Yates Center.
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## ADDENDUM.

## The University Practice School.

NOTE.—This "University Practice School" was not finally decided until after this general catalogue was practically all printed. Therefore it is inserted here as an addendum, at the eleventh hour.

A training school of secondary grade, under the direct supervision of the School of Education of the University of Kansas, will be opened on Mount Oread, in Lawrence, September 16, 1911. The school is situated one-half block's distance from the University grounds. The primary reason for organizing this school is to afford the advanced students of the School of Education opportunity to teach under experts and to observe good teaching while they are pursuing their professional preparation.

Every effort is to be put forth to offer in the Oread School such instruction as will be best suited for pupils of high-school age. Classes will be small, and individual instruction and direction of study as well as of recitation will be aimed at. All teaching will be done under strict and expert supervision of specially qualified members of the faculty of the School of Education. Instruction will be offered in all branches of high-school work, although for the first year the number of classes organized will depend upon the demand. There will be a nominal tuition fee of ten dollars per semester of eighteen weeks.

In addition to the combined purposes of furnishing to advanced students of the University facilities for systematic observation and practice under direction, and of affording the School of Education of the University an opportunity to study at first hand the genuine problems of the modern American high school, Oread School will also plan to furnish those students who enter the University with conditions such instruction as will enable them to satisfy all regular admission requirements. All regular students of the school will enter on conditions similar to the standards for entering any first-class high school.

Seniors and graduate students in the School of Education will assist the principal and other supervisors in the daily instruction and also in the supervision of study, as well as in the direction of library and laboratory work. There will be exceptional library and laboratory facilities, as the departments of the University will have a direct interest in these as in all other phases of the work of the school.

All students of Oread School will enjoy liberal privileges of gymnasium, athletic fields and tracks, and their physical training will be under expert supervision and will be considered as an essential part of their preparation.

For further information address, Dean of School of Education, University of Kansas, Lawrence, Kan.

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# GENERAL CATALOGUE 1911-'12

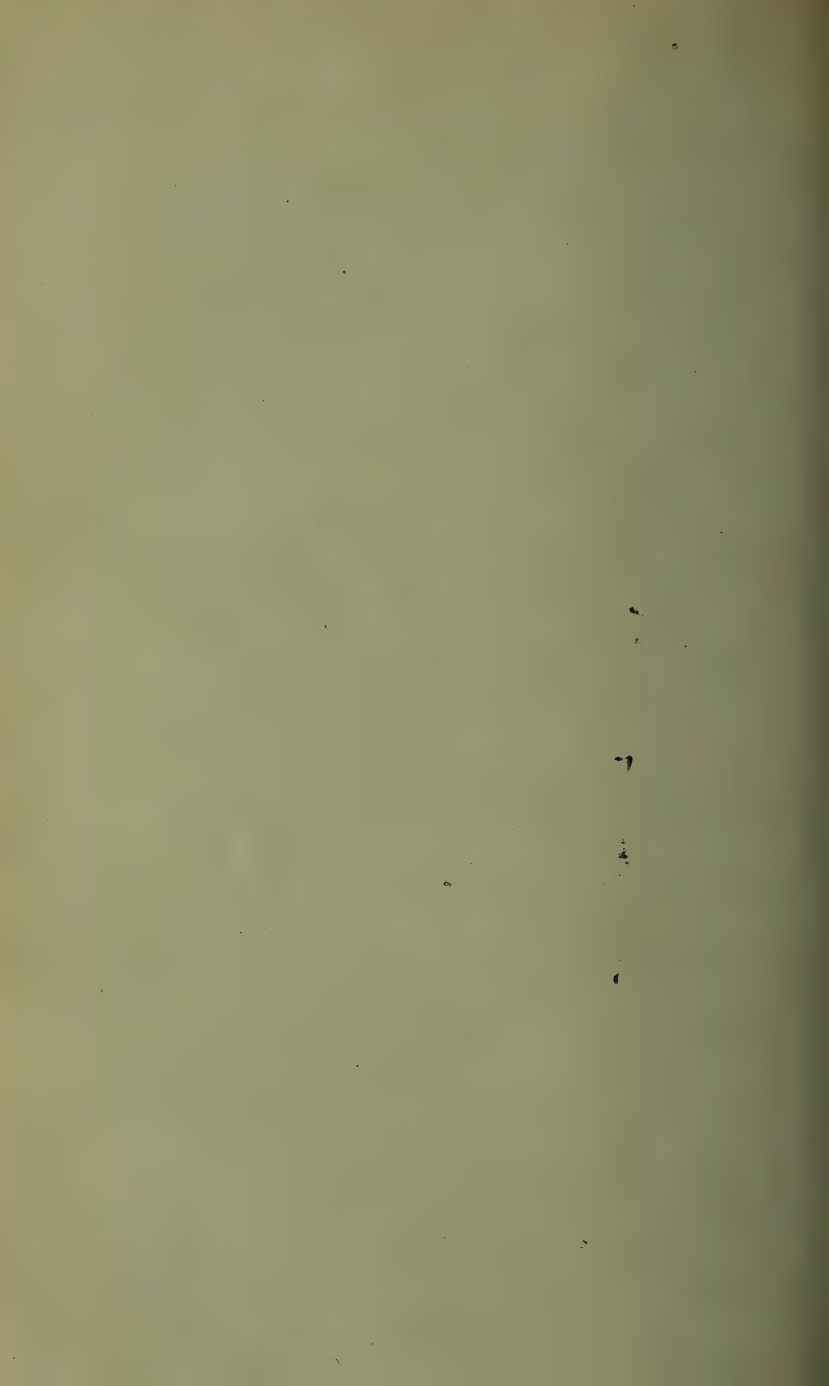


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Forty-sixth Annual Catalogue

OF THE

UNIVERSITY OF KANSAS

For the Year 1911-'12,

AND

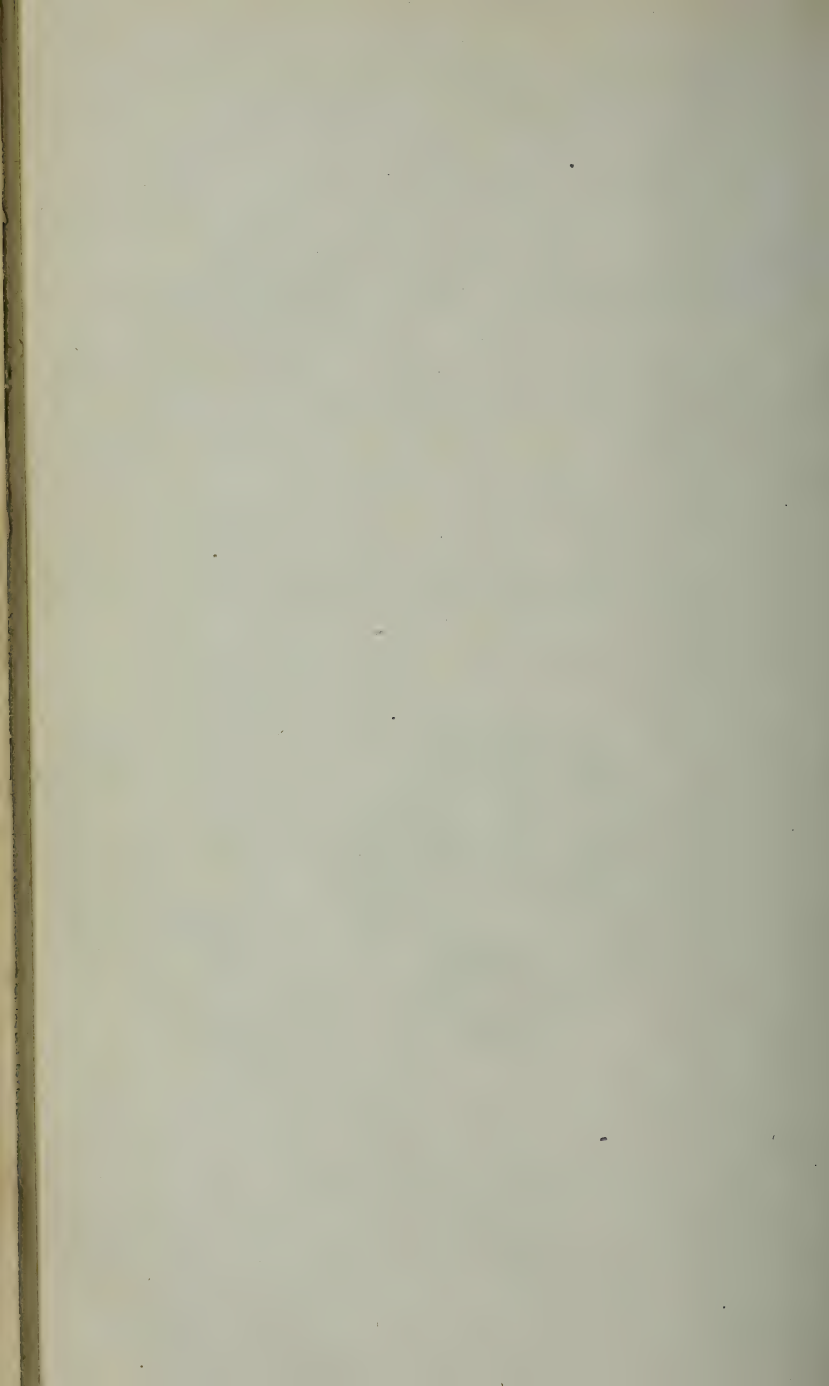
Announcements for the Year 1912-'13.



LAWRENCE, KANSAS,  
APRIL, 1912.

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## UNIVERSITY CALENDAR.

### Academic Year 1911-'12.

Jan. 5, Friday—Christmas recess ends.  
 Jan. 29 to Feb. 2, Monday to Friday, inclusive—Semiannual examinations.  
 Feb. 5, Monday—Second semester begins.  
 Feb. 5 to 26—Annual exhibition of fine paintings.  
 Feb. 6 and 7, Tuesday and Wednesday—Annual opera performance, School of Fine Arts.  
 Feb. 12, Monday, Lincoln's birthday—Legal holiday.  
 Feb. 22, Washington's birthday—Legal holiday.  
 April 5, Friday—First half-semester ends.  
 April 9, Tuesday—Second half-semester begins.  
 April 5 to 8, Friday and Monday—Easter recess, begins 5:30 P. M. Thursday.  
 April 18 and 19, Thursday and Friday—Spring Music Festival.  
 May 27 to 31, Monday to Friday, inclusive—Annual examinations.  
 May 28, Tuesday—Commencement concert by Music department, School of Fine Arts.  
 May 30, Thursday, Memorial Day—Legal holiday.  
 June 2, Sunday, 8 P. M.—Baccalaureate sermon.  
 June 3, Monday, 8 P. M.—Sigma Xi address.  
 June 4, Tuesday, 10:30 A. M.—Annual Alumni address.  
 June 4, Tuesday, 8 P. M.—Chancellor's reception.  
 June 5, Wednesday, 10 A. M.—Commencement exercises.  
 June 6, Thursday—Opening of Summer Session.

### Academic Year 1912-'13.

Sept. 18, Wednesday—First semester begins.  
 Sept. 18, 19, 20 and 21, Wednesday, Thursday, Friday and Saturday—Examination of candidates for admission, and presentation of certificates from high schools, academies, and other institutions.  
 Sept. 20, Friday—General assembly of students and annual address, in University Hall, at 10 A. M.  
 Nov. 25, Monday—Second half-semester begins.  
 Nov. 28 and 29, Thursday and Friday—Thanksgiving recess, begins Wednesday noon.  
 Dec. 17, Tuesday, 8 P. M.—Christmas concert by Music department, School of Fine Arts.  
 CHRISTMAS RECESS—Saturday, Dec. 21, to Friday, Jan. 3, inclusive, begins noon Friday, Dec. 20.  
 Jan. 3, Friday—Christmas recess ends.  
 Feb. 3 to 7, Monday to Friday, inclusive—Semiannual examinations.  
 Feb. 10, Monday—Second semester begins.  
 Feb. 12, Wednesday, Lincoln's birthday—Legal holiday.  
 Feb. 22, Washington's birthday—Legal holiday.  
 March 21 and 24, Friday and Monday—Easter recess, begins 5:30 P. M. Thursday.  
 April 11, Friday—First half-semester ends.  
 April 14, Monday—Second half-semester begins.  
 May 30, Friday, Memorial Day—Legal holiday.  
 June 2 to 6, Monday to Friday, inclusive—Annual examinations.  
 June 8, Sunday, 8 P. M.—Baccalaureate sermon.  
 June 9, Monday, 8 P. M.—Phi Beta Kappa address.  
 June 10, Tuesday, 10:30 A. M.—Annual Alumni address.  
 June 10, Tuesday, 8 P. M.—Chancellor's reception.  
 June 11, Wednesday, 10 A. M.—Commencement exercises.  
 June 12, Thursday—Opening of Summer Session.

## CHRONOLOGICAL TABLE.

---

- 1855.—(December.) A university provided for in the first constitution of Kansas territory, at Topeka.
- 1857.—(June.) State University at Lawrence provided for by free-state legislature, Topeka.
- 1857.—(September.) Seminary of learning provided for in LeCompton constitution.
- 1858.—(April.) Systems of public instruction, including a university department, provided for in Leavenworth constitution.
- 1859.—(July.) State University provided for as at present, in Wyandotte constitution, now the constitution of the state of Kansas.
- 1861.—Congress set apart and reserved for the use and support of a State University seventy-two sections of land.
- 1863.—Lawrence selected as location for the University of Kansas.
- 1864.—The University organized by the legislature.
- 1865.—March 21, first meeting of the Board of Regents.
- 1866.—July 19, Regents elected the first Faculty of the University, consisting of Elial Jay Rice, A. M., David Hamilton Robinson, A. M., and Francis Huntington Snow, A. M.
- 1866.—North College erected.
- 1866.—September 12, first session of the University opened at North College.
- 1870.—Department of Engineering organized.
- 1872.—Fraser Hall erected and occupied.
- 1876.—Normal Department established.
- 1877.—Department of Music organized.
- 1878.—Department of Law organized.
- 1883.—Medical Hall (old Chemistry Building) erected.
- 1885.—Department of Pharmacy established.
- 1885.—Normal Department discontinued.
- 1886.—Snow Hall erected.
- 1891.—The Preparatory Department discontinued, the work being left to the high schools of the state.
- 1891.—The University reorganized and Schools of Arts, Engineering, Law, Fine Arts and Pharmacy established.
- 1894.—Spooner Library erected.
- 1894.—Chancellor's residence erected.
- 1895.—Blake Hall erected.
- 1896.—The Graduate School established.
- 1899.—The Fowler Shops erected.
- 1899.—The School of Medicine established.
- 1900.—Chemistry and Pharmacy Building erected.
- 1902.—Natural History Museum Building erected.
- 1904.—The name of the School of Arts changed to the College of Liberal Arts and Sciences.
- 1904.—Green Hall erected.
- 1905.—Full four-year course in medicine established.
- 1905.—Eleanor Taylor Bell Memorial Hospital erected.
- 1906.—Robinson Auditorium-Gymnasium erected.
- 1906.—Clinical Laboratory erected.
- 1907.—Civil and Mechanical Engineering Building erected.
- 1908.—Mining Engineering Building erected.
- 1908.—Power plant and laboratories erected.
- 1909.—The School of Education and The Division of University Extension established.
- 1911.—First wing of Administration Building erected.
- 1911.—State Hospital erected at Rosedale.
- 1911.—Clay-working laboratory erected.

## GENERAL INFORMATION.

---

THE GENERAL CATALOGUE of the University of Kansas is issued in the spring of each year. A copy will be sent free to any one desiring it.

SEPARATE CATALOGUES of the schools of the University are issued at the same time with the General Catalogue of the University. Separate catalogues will give complete information as to each school or department of the University. Prospective students of the Graduate School, the School of Engineering, the School of Fine Arts, the School of Law, the School of Pharmacy, the School of Medicine, the School of Education, the University Extension Division or the Summer Session will ask for the separate catalogue of the desired school. They are issued free of cost.

THE ALUMNI CATALOGUE of the University is issued at intervals, giving a list of the graduates of the University. Copies are sent free to graduates and former students of the University.

A HIGH-SCHOOL MANUAL is issued at intervals, giving in detail the requirements for entrance to the different schools of the University, together with suggestions as to methods, courses of study, laboratory equipment, and a list of accredited high schools.

SPECIAL BULLETINS are issued during the University year covering topics of importance to the University and the schools and colleges of the state.

THE UNIVERSITY CALENDAR is posted weekly upon the local bulletin board, announcing lectures, concerts, prizes, and other matters of public interest under the auspices of the University, and as soon as possible will be printed in sufficient numbers for distribution, on request, to high schools of the state and to graduates and former students.

For catalogues and other information, address

THE REGISTRAR,

UNIVERSITY OF KANSAS,

Lawrence, Kan.



**PART I.**  
**Officers of the University.**



## BOARD OF REGENTS.

---

CHANCELLOR FRANK STRONG, Lawrence.....	<i>Ex officio.</i>
HON. WILLIAM A. WHITE, Emporia.....	Term exp. 1913
HON. LEON S. CAMBERN, Erie.....	“ “ 1913
HON. CHARLES F. FOLEY, Lyons.....	“ “ 1913
HON. SCOTT HOPKINS, Horton.....	“ “ 1915
HON. JAMES A. KIMBALL, Salina.....	“ “ 1915
HON. RODNEY A. ELWARD, Castleton.....	“ “ 1915

### *Officers of the Board.*

CHANCELLOR FRANK STRONG...	<i>President, ex officio.</i>
SCOTT HOPKINS .....	<i>Vice President.</i>
RODNEY A. ELWARD.....	<i>Secretary.</i>

---

## COMMITTEES OF THE BOARD.

### *Buildings:*

Messrs. WHITE, HOPKINS and FOLEY.

### *Grounds:*

Messrs. KIMBALL, WHITE and ELWARD.

### *Auditing:*

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### *Finance:*

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### *Organization and Policy:*

Messrs. HOPKINS, CAMBERN and KIMBALL.

## ADMINISTRATIVE OFFICERS.

### THE UNIVERSITY.

**FRANK STRONG, PH. D.,** Chancellor.

Room 101, Fraser Hall.

Hours: 10 A. M. to 12 M. and 2 to 4 P. M.

**WILLIAM H. CARRUTH, PH. D.,** Vice President of the Faculties.

**EDWARD E. BROWN,** Secretary and Purchasing Agent.

Room 105, Fraser Hall.

Hours: 8:30 A. M. to 12:30 P. M. and 2 to 5 P. M.

**GEORGE O. FOSTER, A. B.,** Registrar.

Room 111, Fraser Hall.

Hours: 8 A. M. to 12 M. and 2 to 5 P. M.

**WILLIAM H. JOHNSON, A. M.,** High-school Visitor.

Room 113, Fraser Hall.

Hours: Mondays and Saturdays, 9 A. M. to 12 M. and 2 to 4 P. M.

**EBEN F. CROCKER,** Superintendent of Buildings and Grounds.

Room 201, Repair Shop.

### THE SCHOOLS.

**FRANK W. BLACKMAR, PH. D.,** Dean of the Graduate School.

Room 155, Administration Building.

Hours: 8 to 11 A. M.

**OLIN TEMPLIN, A. M.,** Dean of the College of Liberal Arts and Sciences.

Room 102, Fraser Hall.

Hours: 9:15 A. M. to 12:15 P. M.

**FRANK O. MARVIN, A. M.,** Dean of the School of Engineering.

Room 112, Engineering Building.

Hours: 9 A. M. to 12 M.

**JAMES W. GREEN, A. M.,** Dean of the School of Law.

Room 101, Green Hall.

Hours: 9 to 10 A. M.

**CHARLES S. SKILTON, A. B.,** Dean of the School of Fine Arts.

North College.

Hours: 11 A. M. to 12 M. and 2:30 to 5 P. M.

**LUCIUS E. SAYRE, B. S., PH. M.,** Dean of the School of Pharmacy.

Room 215, Chemistry and Pharmacy Building.

Hours: 10 to 11 A. M.

**SAMUEL J. CRUMBINE, M. D.,** Dean of the School of Medicine.

**MERVIN T. SUDLER, PH. D., M. D.,** Associate Dean of the School of Medicine.



ARTHUR T. WALKER, PH. D., Director of the Summer Session.

Room 202, Fraser Hall.

Hours: Tuesdays and Thursdays, first semester, 9 to 10 A. M.

Mondays, Wednesdays and Fridays, second semester, 9 to 10 A. M.

RICHARD R. PRICE, A. M., Director of University Extension Division.

Room 115, Fraser Hall.

Hours: 8 A. M. to 12 M. and 2 to 5 P. M.

CHARLES H. JOHNSTON, PH. D., Dean of the School of Education.

Room 119, Fraser Hall.

Hours: 10 A. M. to 12 M., first semester.

10 A. M. to 11 A. M., second semester.

### LIBRARY AND GYMNASIUM.

CARRIE M. WATSON, A. B., Librarian.

JAMES NAISMITH, A. B., M. D., Director of Gymnasium.

### THE MUSEUMS.

FRANK STRONG, PH. D., *ex officio*, Director of the Museums.

LEWIS L. DYCHE,\* A. M., M. S., Curator of the Mammals, Birds, and Fishes.

CLARENCE E. MCCLUNG, PH. D., Curator of the Vertebrate Paleontological Collections.

SAMUEL J. HUNTER, A. M., Curator of the Entomological Collections.

ERASMUS HAWORTH, PH. D., Curator of the Geological and Mineralogical Collections.

WILLIAM C. STEVENS, M. S., Curator of the Herbarium.

ALEXANDER M. WILCOX, PH. D., Curator of the Classical Museum.

### UNIVERSITY GEOLOGICAL SURVEY OF KANSAS.

FRANK STRONG, PH. D., Director, *ex officio*.

ERASMUS HAWORTH, PH. D., State Geologist.

EDGAR H. S. BAILEY, PH. D., Chemist.

### ENGINEERING EXPERIMENT STATION.

FRANK STRONG, PH. D., President.

FRANK O. MARVIN, A. M., Director, Civil Engineering.

EDGAR H. S. BAILEY, PH. D., Chemical Engineering.

ERASMUS HAWORTH, PH. D., Mining Engineering.

PERLEY F. WALKER, M. M. E., Mechanical Engineering.

GEORGE C. SHAAD, E. E., Electrical Engineering.

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\* Now acting as state fish and game warden.

## UNIVERSITY COUNCIL.

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THE CHANCELLOR OF THE UNIVERSITY, *Chairman.*

WILLIAM CHASE STEVENS, *Secretary.*

Professors and heads of departments of the schools of the University.

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## THE FACULTIES.

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The Faculty of each school is made up of the heads of departments offering work in that school, the professors and associate professors offering courses in it, and the assistant professors and instructors who have been assigned to that Faculty. By a rule of the Board of Regents, only professors and associate professors may be members of more than one Faculty. Teachers of lower rank may, however, give instruction in several schools of the University. In such cases the name of the instructor is printed in the departmental list of each school in which he gives instruction.

Each Faculty is the legal governing body in all matters concerning its own school *exclusively*.

## OFFICERS OF INSTRUCTION AND ADMINISTRATION.

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The officers of instruction and administration in the University are divided into the following groups:

PROFESSORS.

ASSOCIATE PROFESSORS.

ASSISTANT PROFESSORS.

INSTRUCTORS.

ASSISTANT INSTRUCTORS.

LIBRARIAN AND ASSISTANTS.

EXECUTIVE AND BUSINESS OFFICERS.

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### PROFESSORS.

FRANK STRONG, A. B., 1884, A. M., 1893, PH. D., 1897, (Yale); LL. D., 1909, (Baker University). Chancellor of the University, and President of the Faculties, 1902.\*

(101 F.†) 1345 Louisiana.

WILLIAM HERBERT CARRUTH, A. B., 1880, (University of Kansas); A. M., 1889, PH. D., 1893, (Harvard). Vice President of the Faculties, and Professor of Germanic Languages and Literatures, 1882. 1879.

(303 F.) 1342 Louisiana.

EPHRAIM MILLER, A. B., 1855, A. M., 1858, PH. D., 1895, (Allegheny). Emeritus Professor of Mathematics and Astronomy, 1910; 1874.

Pasadena, Calif.

JAMES WOODS GREEN, A. B., 1866, A. M., 1886, (Williams). Dean of the School of Law, and Professor of Law, 1878.

(101 G.) 637 Tennessee.

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\* The date after each title indicates the year of appointment to the present rank; a second date denotes the year of first appointment in the University, when that fact is not indicated by the first date.

† Abbreviations:

A=Administration Building.

B=Blake Hall.

C=Chemistry Building.

D=Dick Building Studios.

F=Fraser Hall.

G=Green Hall.

H=Haworth Hall.

L=Spooner Library.

M=Marvin Hall.

Med=Medical Hall.

Mu=Museum of Natural History.

N=North College.

RG=Robinson Gymnasium.

S=Snow Hall.

Sh=Fowler Shops.

ML=Mechanical Laboratory.

PP=Power Plant.

- FRANK OLIN MARVIN, A. B., 1871, A. M., 1874, (Allegheny).  
Dean of the School of Engineering, and Professor of Civil  
Engineering, 1882; 1875. (112 M.) 1603 Massachusetts.
- EDGAR HENRY SUMMERFIELD BAILEY,\* PH. B., 1873, (Yale);  
PH. D., 1883, (Illinois Wesleyan). Professor of Chemistry and  
Metallurgy, and Director of Chemical Laboratories, 1883.  
(214 C.) 1101 Ohio.
- ALEXANDER MARTIN WILCOX, A. B., 1877, PH. D., 1880, (Yale).  
Professor of Greek Language and Literature, 1885.  
(204 F.) 1605 Vermont.
- LUCIUS ELMER SAYRE, B. S., 1897, (University of Michigan);  
PH. G., 1866, PH. M., 1896, (Philadelphia). Dean of the  
School of Pharmacy, and Professor of Pharmacy, 1885.  
(215 C.) 1323 Ohio.
- LEWIS LINDSAY DYCHE,† A. B., B. S., 1884, A. M., 1886, M. S.,  
1888, (University of Kansas). Professor of Systematic  
Zoölogy, now acting as State Fish and Game Warden, 1889;  
1883. Pratt, Kan.
- FRANK WILSON BLACKMAR, PH. D., 1889, (Johns Hopkins).  
Dean of the Graduate School, and Professor of Sociology and  
Economics, 1889. (155 A.) 1115 Ohio.
- CHARLES GRAHAM DUNLAP, A. B., 1883, A. M., 1899, (Ohio Wes-  
leyan); LITT. D., 1892, (Princeton). Professor of English  
Literature, 1890; 1887. (301 F.) 925 Kentucky.
- CARL ADOLPH PREYER, (Vienna), MUS. D., 1909, (Baker Univer-  
sity). Professor of Piano, Counterpoint, Canon, and Fugue,  
1892. (N.) 2014 Massachusetts.
- OLIN TEMPLIN, A. B., 1886, A. M., M. S., 1890, (University of  
Kansas). Dean of the College of Liberal Arts and Sciences,  
and Professor of Philosophy, 1893; 1884.  
(102 F.) 1025 Missouri.
- EDWIN MORTIMER HOPKINS, A. B., 1888, PH. D., 1894, (Prince-  
ton). Professor of Rhetoric and English Language, 1893;  
1889. (201 F.) 1201 Tennessee.
- FRANK HEYWOOD HODDER, A. B., PH. M., 1883, (University of  
Michigan). Professor of American History and Political  
Science, 1893; 1891. (211 A.) 1115 Louisiana.
- ERASMUS HAWORTH, B. S., 1881, M. S., 1884, (University of Kan-  
sas); PH. D., 1888, (Johns Hopkins). Professor of Geology,  
Mineralogy, and Mining, and Superintendent of the Geological  
Survey, 1894; 1892. (104 H.) 1503 Massachusetts.

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\* On leave of absence, second semester, 1911-'12.

† On leave of absence.



ARTHUR TAPPAN WALKER, A. B., 1887, (University of New York City); A. M., 1892, (Vanderbilt); PH. D., 1898, (University of Chicago). Director of the Summer Session, and Professor of Latin Language and Literature, 1897. (202 F.) 1645 Louisiana.

WILLIAM CHASE STEVENS, B. S., 1885, M. S., 1893, (University of Kansas). Professor of Botany, 1899; 1889.  
(201 S.) 1121 Louisiana.

ARVIN SOLOMON OLIN, A. B., 1892, (Ottawa University); A. M., 1894, (University of Kansas). Professor of Education, 1899; 1893.  
(106 F.) 1144 Louisiana.

WILLIAM ALEXANDER GRIFFITH, (Academy Julien, Paris). Professor of Drawing and Painting, 1899.  
(310 A.) 1200 Louisiana.

EUGENIE GALLOO, B. L., 1892, (University of Michigan); Académie de Paris, Brevet, 1881, Sorbonne, 1884, (University of France); A. M., 1895, (University of Kansas). Professor of Romance Languages and Literatures, 1900; 1892.  
(304 F.) 1324 Louisiana.

WILLIAM LIVESEY BURDICK, A. B., 1882, A. M., 1884, (Wesleyan); PH. D., 1885, (Grant); LL. B., 1898, (Yale). Professor of Law, 1902; 1898.  
(206 G.) 916 Kentucky.

CHARLES SANFORD SKILTON, A. B., 1889, (Yale). Dean of the School of Fine Arts, and Professor of Musical Theory and Organ, 1903.  
(N.) 1318 Louisiana.

CHARLES EDWARD HUBACH, (Graduate of the New England Conservatory of Music; Sbriglia, Paris). Professor of Voice, 1903.  
(N.) West City Limits.

JOHN ELOF BOODIN, A. B., 1895, A. M., 1896, (Brown); PH. D., 1899, (Harvard). Professor of Philosophy, 1904.  
(104 A.) Eldridge House, Room 38.

IDA HENRIETTA HYDE, B. S., 1891, (Cornell); PH. D., 1896, (Heidelberg, Germany). Professor of Physiology, 1905; 1899.  
(102 Med.) 1126 Louisiana.

WILLIAM HAMILTON JOHNSON, A. B., 1885, A. M., 1892, (University of Kansas). High-school Visitor, and Professor of Education, 1905; 1903.  
(113 F.) 1201 Oread Ave.

JAMES NAISMITH, A. B., 1887, (McGill University); M. D., 1898, (Gross Medical College). Professor of Physical Education, and Chapel Director, 1906; 1898. (RG.) 1635 Massachusetts.

MARSHALL ALBERT BARBER,\* A. B., 1891, (University of Kansas); A. M., 1894, (Harvard). Professor of Bacteriology and Pathology, and Director of the Clinical Laboratories, 1906; 1895.

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\* On leave of absence in government laboratories, Manilla, P. I., 1911-'13.

## UNIVERSITY OF KANSAS.

- SAMUEL JOHN HUNTER, A. B., A. M., 1893, (University of Kansas). Professor of Entomology, 1906; 1896.  
(102 S.) 1309 Ohio.
- WILLIAM EDWARD HIGGINS, B.S., 1888, LL. B., 1894, (University of Kansas). Professor of Law, 1906; 1899.  
(205 G.) 1238 Ohio.
- CLARENCE ERWIN MCCLUNG, PH. G., 1892, A. B., 1896, A. M., 1898, PH. D., 1902, (University of Kansas). Professor of Zoölogy, 1906; 1897.  
(206 S.) 1209 Ohio.
- PERLEY F. WALKER, B. M. E., 1896, (University of Maine); M. M. E., 1901, (Cornell). Professor of Mechanical Engineering, 1906; 1905.  
(211 M.) 1301 Ohio.
- MERVIN TUBMAN SUDLER, PH. D., 1899, (Johns Hopkins); M. D., 1901, (College of Physicians and Surgeons, Baltimore). Associate Dean of the School of Medicine, and Professor of Surgery, 1911; 1905.  
805 Tennessee.
- ROBERT KENNEDY DUNCAN, A. B., 1892, (Toronto). SC. D., 1912, (University of Pittsburgh). Director of Industrial Research, with rank of Professor, 1910; 1906.
- CARL LOTUS BECKER, B. L., 1896, PH. D., 1907, (University of Wisconsin). Professor of European History, 1908; 1902.  
(211 A.) 1144 Indiana.
- L. D. HAVENHILL, PH. C., 1893, PH. M., 1894, (University of Michigan); B. S., 1903, (University of Kansas). Professor of Pharmacy, 1908; 1899.  
(1 C.) 1539 Vermont.
- FREDERICK EDWARD KESTER, M. E., 1895; (Ohio State University); A. M., 1899, PH. D., 1905, (Cornell). Professor of Physics, 1909.  
(204 B.) 1612 Louisiana.
- GEORGE CARL SHAAD, B. S., 1900, M. S., 1905, (Penn. State College). Professor of Electrical Engineering, 1909.  
(15 M.) University Heights.
- RICHARD REES PRICE, A. B., (University of Kansas, 1897; Harvard, 1900); A. M., 1901, (Harvard). Director of University Extension, with rank of Professor, 1909. (115 F.) 1329 Ohio.
- CHARLES HUGHES JOHNSTON, A. B., 1898, (University of North Carolina); A. M., 1903, PH. D., 1905, (Harvard). Professor of Education, and Dean of the School of Education, 1910.  
(119 F.) 1240 Mississippi.
- EDNA D. DAY, B. S., 1896; M. S., 1897, (University of Michigan); PH. D., 1908, (University of Chicago). Professor of Home Economics, 1910.  
(10 F.) 1345 Tennessee.
- HENRY CLINTON HILL, A. B., 1888, (Bowdoin); LL. B., 1899, (University of Michigan). Professor of Law, 1910.  
(203 G.) 818 Kentucky.

SAMUEL JAY CRUMBINE, M. D., 1889, (Cincinnati); Dean of the School of Medicine. 1303 Tyler, Topeka.

HAMILTON PERKINS CADY, A. B., 1897, PH. D., 1903, (University of Kansas). Professor of Chemistry, 1911; 1899. (115 C.) 1535 Kentucky.

WILLIAM CHRISTIAN HOAD, B. S., 1898, (University of Kansas). Professor of Civil Engineering, 1911; 1900. (209 M.) 1043 Indiana.

B. J. DALTON, B. C. E., 1890, (University of Kansas). Professor of Railway Engineering and Surveying, 1906. (118 M.) 1011 Indiana.

THOMAS HARRIS BOUGHTON, B. S., 1903, M. S., 1904, (University of Chicago); M. D., 1906, (Rush Medical College). Professor of Bacteriology and Pathology, 1911. (203 S.) 815 Indiana.

EDWARD JAMES CURRAN, M. D., 1908, (Harvard); D. Ophth., 1910, (Oxon). Professor of Anatomy, 1911. (Mu.) 1145 Indiana.

MERLE THORPE, A. B., 1908, (University of Washington). Professor of Journalism, and Head of the Department of Publicity, 1911. (Med.) 1301½ Tennessee.

CHARLES MOREAU HARGER, L. H. D., 1901, (Bethany); LITT. D., (Baker University). Lecturer in Journalism, 1911, 1905. Abilene, Kan.

MONTROSE PALLEN MCARDLE. Professor of Architecture, 1910.

JOSEPH E. SAWTELL, M. D., 1886, (College of Physicians and Surgeons, Baltimore). Professor of Rhinology, and Head of the Department. Bryant bldg., Kansas City, Mo.

DON CARLOS GUFFEY, A. B., 1899, (University of Missouri); M. D., 1905, (University of Pennsylvania). Professor of Obstetrics and Gynecology. (BH.) Commerce bldg., Kansas City, Mo.

FRANKLIN E. MURPHY, 1893, (University of Pennsylvania). Professor of Internal Medicine. Deardorff bldg., Kansas City, Mo.

JACOB BLOCK, M. D., 1879, (Medical College of Ohio). Professor of Genito-urinary Surgery. Argyle bldg., Kansas City, Mo.

JOHN WALTER PERKINS, A. B., 1882, M. D., 1886, (Harvard). Professor of Surgery (Surgical Diagnosis). Altman bldg., Kansas City, Mo.

ISADORE JULIUS WOLF, M. D., 1887, (Munich). Professor of Internal Medicine. Argyle bldg., Kansas City, Mo.

ANDREW WALTER MCALESTER, JR., A. B., 1902, M. D., 1905, (University of Missouri). Professor of Ophthalmology, 1908.

Bryant bldg., Kansas City, Mo.

CLARENCE CASE GODDARD, M. D., 1873, (Bellevue Hospital Medical College). Professor of Neurology.

Evergreen Place Sanitarium, Leavenworth.

S. S. GLASSCOCK, M. D., 1887, (Rush Medical College). Professor of Psychiatry.

Rialto bldg., Kansas City, Mo.

GEORGE M. GRAY, M. D., 1879, (Kansas City Medical College). Clinical Professor of Surgery.

Portsmouth bldg., Kansas City, Kan.

HENRY O. HANAWALT, M. D., 1873, (Medical College of Ohio). Professor of Neurology.

Shukert bldg., Kansas City, Mo.

DAVID RITTENHOUSE PORTER, M. D., 1872, (Bellevue Hospital Medical College). Professor Emeritus of Internal Medicine, and Lecturer on Life Insurance, 1909.

Kansas City, Mo.

LYMAN L. UHLS, M. D., 1884, (Rush Medical College). Professor of Psychiatry, 1911.

Osawatomie.

ZACHARIAH NASON, M. D., 1888, (College of Physicians and Surgeons, Baltimore). Clinical Professor of Obstetrics.

Packard and Osage, Kansas City, Kan.

CHARLES J. LIDIKAY, M. D., 1894, (University of Louisville). Clinical Professor of Ophthalmology, 1908, 1907.

Portsmouth bldg., Kansas City, Kan.

JAMES W. MAY, M. D., 1900, (College of Physicians and Surgeons, Kansas City, Kan.) Clinical Professor of Surgery, 1911.

Husted bldg., Kansas City, Kan.

### ASSOCIATE PROFESSORS.

MILES WILSON STERLING, A. B., 1883, A. M., 1893, (University of Kansas). Associate Professor of Greek, 1901; 1883.

(204 F.) 1129 Louisiana.

RAPHAEL DORMAN O'LEARY, A. B., (University of Kansas, 1893; Harvard, 1895). Associate Professor of Rhetoric, 1901; 1896.

(301 F.) 1106 Louisiana.

HANNAH OLIVER, A. B., 1874, A. M., 1888, (University of Kansas). Associate Professor of Latin, 1905; 1890.

(201 F.) 802 Tennessee.

ELMER FRANKLIN ENGEL, A. B., 1892, (University of Kansas); A. M., 1898, (Harvard). Associate Professor of German, 1905; 1892.

(103 M.) 1211 Kentucky.



- SELDEN LINCOLN WHITCOMB,\* A. B., 1887, (Grinnell); A. M., 1893, (Columbia). Associate Professor of English Literature, 1905. (201 F.) 1026 Ohio.
- MARTIN EVERETT RICE, B. S., 1891, M. S., 1893, (University of Kansas). Associate Professor of Physics and Electrical Engineering, 1906; 1892. (204 B.) 1223 Vermont.
- JOHN NICHOLAS VAN DER VRIES,\* A. B., 1896, A. M., 1899, (Hope); PH. D., 1901, (Clark). Associate Professor of Mathematics, 1906; 1901. (108 M.) 1644 New Hampshire.
- HERBERT ALLAN RICE, C. E., 1897, (Ohio State University). Associate Professor of Civil Engineering, 1905. (202 M.) 1108 Ohio.
- CLINTON MASON YOUNG, B. S. in Mining, 1904, E. M., 1909, (Case). Associate Professor of Mining Engineering, 1906, (H.) 1227 Ohio.
- RAYMOND ALFRED SCHWEGLER,† A. B., 1899, (Brown); A. M., 1907, (Ottawa University). Associate Professor of Education, 1907. (106 F.)
- FREDERICK HORATIO BILLINGS,\* A. B., 1896, (Leland Stanford); A. M., 1897, (Harvard); PH. D., 1901, (Munich). Associate Professor of Botany and Bacteriology, 1907. (201 S.) 1207 Tennessee.
- DAVID LESLIE PATTERSON, B. S., 1895, (Pennsylvania State College). Associate Professor of European History, 1908. (209 A.) 1135 Ohio.
- HENRY WILBUR HUMBLE, LL. B., 1904, (University of Cincinnati); A. M., 1908, (Cornell). Associate Professor of Law, 1908. (202 G.) University Heights.
- LOUIS EUGENE SISSON, A. B., 1904, (Leland Stanford); A. M., 1909, (Harvard). Associate Professor of Rhetoric, 1905; 1904. (201 F.) 1234 Louisiana.
- CLARENCE ADDISON DYKSTRA, A. B., 1903, (University of Iowa). Associate Professor of History, 1909. (209 A.) 707 West Hancock.
- ARTHUR JEROME BOYNTON, A. B., 1901, (Harvard); A. M., 1902, (Columbia). Associate Professor of Economics, 1910; 1903. (204 A.) 1135 Ohio.
- CHARLES HAMILTON ASHTON, A. B., 1887, (Union); A. M., 1893, (Harvard); PH. D., 1909, (Munich). Associate Professor of Mathematics, 1910; 1903. (108 M.) 1202 Ohio.

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\* On leave of absence, second semester, 1911-'12.

† On leave of absence, 1911-'12.

- FRANCIS WILLIAM BUSHONG, A. B., 1885, A. M., 1888, (Franklin and Marshall); Sc. D., 1900, (College of Emporia). Fels Fellow in Industrial Research, with the rank of Associate Professor of Chemistry, 1910; 1905. (11 C.) 1609 Vermont.
- ALBERTA LINTON CORBIN, A. B., 1893, (University of Kansas); Ph. D., 1902, (Yale). Associate Professor of German, 1911; 1901. (303 F.) 1108 Ohio.
- GEORGE JUSSEN HOOD, B. S., 1902, (University of Kansas). Associate Professor of Mechanical Drawing, 1911; 1902. (302 M.) University Heights.
- CHARLES IVES CORP, B. S., 1903, (University of Kansas). Associate Professor of Mechanical Engineering, 1911; 1904. (10 M.) 1520 New Hampshire.
- WILLIAM OLIVER HAMILTON, A. B., 1898, (William Jewell College). Associate Professor of Physical Education, 1911; 1909. (RG.) 1134 Mississippi.
- FRANK BURNETT DAINS, Ph. B., 1890, M. S., 1891, (Wesleyan University); Ph. D., 1898, (University of Chicago). Associate Professor of Chemistry, 1911. (102 C.) 1702 Massachusetts.
- MARGARET LEE JOHNSON, M. D., 1908, (University of Colorado). Associate Professor of Physical Education, 1911. (RG.) 1228 Ohio.
- AUGUSTUS WILLIAM TRETTIEN, B. L., 1899, (University of Wisconsin); Ph. D., 1904, (Clark University). Associate Professor of Education, 1911. (Myers Hall.) 938 Louisiana.
- WILLIAM ASBURY WHITAKER, JR., Ph. B., 1904, (University of North Carolina); M. A., 1905, (Columbia). Associate Professor of Metallurgy, 1911. (310 C.) 1109 Ohio.
- WILLIAM KIRK TRIMBLE, M. D., 1900, (Kansas City Medical College). Associate Professor of Clinical Pathology, 1908; 1905. (Lab.) Rosedale, Kan.
- HARRY LESLIE CHAMBERS, M. S., 1896, (Lane University); M. D., 1895, (Kansas City Medical College). Adjunct Professor of Hygiene, and University Physician, 1911. (RG.) 1415 Massachusetts.
- ARTHUR E. HERTZLER, M. D., 1894, (Northwestern); Ph. D., 1902, (Illinois Wesleyan). Associate Professor of Surgery. (BH.) Rosedale, Kan.
- ANDREW L. SKOOG, M. D., 1902, (Northwestern). Associate Professor of Neurology, 1911. Rialto bldg., Kansas City, Mo.

WALTER S. SUTTON, A. B., 1900, A. M., 1901, (University of Kansas); M. D., 1907, (College of Physicians and Surgeons). Associate Professor of Surgery, 1911; 1909.

(BH.) 650 Everett ave., Kansas City, Kan.

WILLIAM L. MCBRIDE, M. D., 1901, (Rush Medical College). Associate Professor of Dermatology. Bryant bldg., Kansas City, Mo.

RICHARD L. SUTTON, M. D., 1901, (University Medical College). Associate Professor of Dermatology, 1911.

610 Commerce bldg., Kansas City, Mo.

JOHN N. SCOTT, PH. G., 1887, (University of Kansas); M. D., 1896, (University Medical College, Kansas City). Associate Professor of Therapeutics.

Commerce bldg., Kansas City, Mo.

SAMUEL CHARLES EMLEY, A. B., 1899, (University of Kansas); M. D., 1902, (Rush Medical College). Associate Professor of Rhinolaryngology, 1911; 1905.

1015 Quindaro, Kansas City, Kan.

WILLIAM F. KUHN, A. M., 1878, (Wittenberg); M. D., 1885, (Jefferson Medical College). Adjunct Professor and Lecturer.

125 Rialto bldg., Kansas City, Mo.

SIMON B. LANGWORTHY, M. D., 1887, (Kansas City Medical College). Adjunct Professor of Gynecology.

Leavenworth, Kan.

## ASSISTANT PROFESSORS.

FRANK EMERSON WARD, (Northern Indiana Normal School). Superintendent of Fowler Shops and Shop Instruction, 1899; 1889.

(Sh.) 1236 Oread ave.

CHARLES MORGAN STERLING, A. B., 1897, (University of Kansas). Assistant Professor of Pharmacognosy, 1901.

(209 C.) 923 Indiana.

FREDERICK NEWTON RAYMOND, A. B., 1896, (University of Kansas); A. M., 1897, (Columbia). Assistant Professor of Rhetoric, 1901.

(107 M.) 811 Mississippi.

MARGARET LYNN, B. S., 1889, (Tarkio); A. M., 1900, (University of Nebraska). Assistant Professor of English Literature, 1901.

(301 F.) 1244 Louisiana.

EDWIN FISKE STIMPSON, B. S., 1890, (University of Kansas). Assistant Professor of Physics, 1905; 1901.

(202 B.) 929 Indiana.

WILLIAM JACOB BAUMGARTNER, A. B., 1900, A. M., 1901, (University of Kansas). Assistant Professor of Zoölogy and Histology, 1905; 1904.

(3 S.) 1601 Tennessee.

HENRY OTTO KRUSE, A. B., 1894, A. M., 1903, (University of Kansas). Assistant Professor of German, 1905; 1904.

(303 F.) 1538 Kentucky.

ELISE NUEN SCHWANDER, A. B., 1898, (University of Kansas). Assistant Professor of Romance Languages, 1905.

(304 F.) 1324 Louisiana.

CHARLES HENRY GRAY, B. L., 1895, M. L., 1896, (University of Michigan); PH. D., 1904, (University of Chicago). Assistant Professor of English Literature, 1905.

(301 F.) 1000 Ohio.

HERBERT WILLIAM EMERSON, PH. C., 1901, B. S., 1902, (University of Michigan). Assistant Professor of Pharmacy, 1906; 1903.

(105 C.) University Heights.

CHARLES COCHRAN, University of Colorado). Assistant Professor of Mechanical Drawing, 1906.

(302 M.) 1336 Kentucky.

LEON NELSON FLINT, A. B., 1897, (University of Kansas). Assistant Professor of Journalism, 1906.

(112 F.) 1617 Kentucky.

FRANK EVERETT JONES, (Armour Institute). Assistant Professor of Carpentry and Pattern Making, 1903.

(Sh.) 1324 New Hampshire.

CLARENCE CORY CRAWFORD, A. B., 1903, A. M., 1904, (University of Kansas); PH. D., 1906, (University of Wisconsin). Assistant Professor of European History, 1907.

(209 A.) 1244 Louisiana.

EARL WALTER MURRAY, A. B., 1904, (University of Kansas). Assistant Professor of Latin, 1907.

(202 F.) 1601 Louisiana.

HENRY LOUIS JACKSON, B. S., 1905, (Massachusetts Institute of Technology). Assistant Professor of Chemistry, in Charge of Foods, 1907.

(308 C.) 917 Maine.

JAMES EDWARD TODD, A. B., 1867, A. M., 1870, (Oberlin). Assistant Professor of Geology and Mineralogy, 1907.

(1 H.) 1224 Rhode Island.

HARRIET GREISSINGER, MUS. B., 1895, (University of Kansas). Assistant Professor of Piano, 1907; 1902.

(N.) 1232 Louisiana.

JAMES ANDREW CAMPBELL, A. B., 1901, A. M., 1906, (University of Michigan). Assistant Professor of German, 1907; 1906.

(303 F.) 1704 Tennessee.

BLANCHE LYONS, (New England Conservatory of Music). Assistant Professor of Voice, 1907; 1904.

(N.) 940 Kentucky.

ALFRED HIGGINS SLUSS, B. S. in Mech. Eng., 1901, (University of Illinois). Assistant Professor of Mechanical Engineering, 1908.

(305 M.) 1133 Kentucky.



WILLIAM SAVAGE JOHNSON, A. M., 1900, PH. D., 1905, (Yale). Assistant Professor of English Literature, 1908.

(301 F.) 1135 Ohio.

WILLIAM PHILIP WARD, A. B., 1906, (Western Reserve University). Assistant Professor of Romance Languages, 1908.

(304 F.) 819 Kentucky.

MAUDE BEATRICE COOKE, (University of Kansas); (New England Conservatory of Music, Berlin). Assistant Professor of Piano, 1907; 1904.

(N.) 917 Kentucky.

HARRY GARDNER, B. S. in General Engineering, 1905, (University of Wisconsin). Assistant Professor of Sanitary Engineering, 1909.

(209 M.) 1045 Maine.

ROY LEE MOODIE, A. B., 1905, (University of Kansas); PH. D., 1908, (University of Chicago). Assistant Professor of Zoölogy, 1909; 1908.

(206 S.) 1845 Larnard Ave.

DAVID CAMP ROGERS, A. B., 1899, (Princeton); A. M., 1902, PH. D., 1903, (Harvard). Assistant Professor of Psychology, 1909.

(5 A.) 1234 Mississippi.

EDWARD MAURICE BRIGGS, A. B., 1904, (University of Nebraska); A. M., 1908, (University of Kansas). Assistant Professor of German, 1910; 1906.

(103 M.) 1234 Oread ave.

ALBERT MOREY STURTEVANT, A. B., 1899, A. M., 1901, PH. D., 1905, (Harvard). Assistant Professor of German, 1910; 1908.

(303 F.) 924 Louisiana.

GEORGE NATHANIEL WATSON, A. B., 1904, B. S., PH. C., 1908, (University of Michigan). Assistant Professor of Pharmacy, 1910; 1909.

(3 C.) 1011 Alabama.

EDWARD TILLOTSON, PH. D., 1909, (Yale). Holophane Fellow in Industrial Research, with rank of Assistant Professor, 1909.

(14 C.) 1541 Tennessee.

L. V. REDMAN, A. M., (Toronto). Julius Karpen Fellow in Industrial Research, with rank of Assistant Professor, 1910.

(15 C.) 1803 Massachusetts.

WILLIAM HENRY TWENHOFEL, A. B., 1904, (Lebanon); A. B., 1908, A. M., 1910, (Yale). Assistant Professor of Geology, 1910.

(103 H.) 1515 Vermont.

ARTHUR LESLIE OWEN, A. B., 1906, (University of Vermont); A. M., 1908, (University of Illinois); Assistant Professor of Romance Languages, 1910.

(304 F.) 1135 Tennessee.

HOMER WALKER JOSSELYN, A. B., 1905, A. M., 1910, (University of Michigan). Assistant Professor of Education, 1910.

(118 F.) 1625 Louisiana.

- JOHN PAUL TRICKEY, B. S., 1909, (New Hampshire State College). H. K. Elston Fellow in Industrial Research, with rank of Assistant Professor, 1910. (106 C.) 1803 Massachusetts.
- ULYSSES GRANT MITCHELL, A. B., 1906, A. M., 1907, (University of Kansas); PH. D., 1910, (Princeton). Assistant Professor of Mathematics, 1910. (111 A.) 1240 Rhode Island.
- MARION BALLANTYNE WHITE, PH. B., 1893, (University of Michigan); A. M., 1906, (University of Wisconsin); PH. D., 1910, (University of Chicago). Assistant Professor of Mathematics, 1910. (111 A.) 1304 Ohio.
- LULU GARDNER, A. B., 1905, (University of Kansas). Assistant Professor of Rhetoric, 1910. (201 F.) 407 W. Hancock.
- HERMAN CAMP ALLEN, A. B., 1904, (McPherson College); A. M., 1905, (University of Kansas). Assistant Professor of Chemistry, 1910. (204 C.) 1000 Alabama.
- WILLIAM WATSON DAVIS, B. S., 1903, M. S., 1904, (Alabama Polytechnic); A. M., 1905, (Columbia). Assistant Professor of American History and Political Science, 1910. (209 A.) 1135 Ohio.
- GERHARD ADAM GESELL, A. B., 1908, (University of Wisconsin). Assistant Professor of Public Speaking, 1910. (108 F.) 1332 Louisiana.
- VICTOR EMANUEL HELLEBERG, A. B., 1883, (Yale); LL. B., 1885, (Cincinnati). Assistant Professor of Sociology, 1910. (204 A.) 1732 Louisiana.
- ELIAS BRANSEN COWGILL, B. PH., 1869, A. M., 1885, (State University of Iowa). Assistant in Journalism and University Extension, 1909.
- RALPH ARTHUR SHERWIN, B. S., (Dartmouth). Assistant Professor of Physical Education, 1911. (RG.) 1108 Tennessee.
- CALVERT JOHNSON WINTER, PH. B., 1905, (Hiram College). Assistant Professor of Romance Languages, 1911; 1909. (304 F.) 1230 Oread Ave.
- CLARENCE ANTHONY JOHNSON, B. S., 1906, (University of Nebraska). Assistant Professor of Electrical Engineering, 1911; 1908. (15 M.) 932 Maine.
- CLIFFORD CAUDY YOUNG, A. B., 1910, (University of Kansas). Assistant Professor of Chemistry, 1911; 1910. (302 C.) 1015 Maine.
- DE WITT CLINTON CROISSANT, A. B., 1899, PH. D., 1911, (Princeton). Assistant Professor of English, 1911. (201 F.) 1216 Tennessee.

ARTHUR MITCHELL, A. B., 1894, (Yale); PH. D., 1910, (Harvard). Assistant Professor of Philosophy, 1911.

(104 A.) 408 W. Pinckney.

OSCAR EDWARD HARDER, A. B., 1910, A. M., 1911, (University of Oklahoma). Food Analyst, with rank of Assistant Professor, 1911.

(308 C.) 910 Louisiana.

ERNEST LYMAN SCOTT, B. S., 1902, (Ohio Wesleyan); M. S., 1911, (University of Chicago). Assistant Professor of Physiology, 1911.

(Med.) 1332 Kentucky.

FREDERICK A. G. COWPER, A. B., A. M., (Trinity). Assistant Professor of Romance Languages, 1911.

(304 F.) 1135 Tennessee.

HERBERT E. JORDAN, A. B., 1900, A. M., 1901, (McMasters University, Toronto); PH. D., 1904, (University of Chicago). Assistant Professor of Mathematics, 1911.

(108 M.) 1600 Kentucky.

GEORGE ELLSWORTH PUTNAM, A. B., 1907, (University of Kansas); B. LITT., 1911, (Oxford). Assistant Professor of Economics, 1911.

(204 A.) 1410 New York.

CHESTER HENRY HEUSER,\* A. B., 1908, A. M., 1910, (University of Kansas). Assistant Professor of Zoölogy, 1912.

(206 S.) University Heights.

DAVID W. STRADLING.\* Assistant Professor of Engineering, 1911.

JESSE E. HUNT, M. D., 1902, (Western Reserve University). Assistant professor of Pediatrics, 1911.

Argyle bldg., Kansas City, Mo.

JOHN G. HAYDEN, B. S., 1902, (University of Chicago); M. D., 1904, (Rush Medical College). Assistant Professor of Surgery, 1909.

Rialto bldg., Kansas City, Mo.

RUSSELL A. ROBERTS, A. B., 1881, A. M., 1886; (Marysville [Tenn.] College); M. D., 1887, (Medical College of Indiana). Assistant Professor of Rectal Surgery, 1911.

Husted bldg., Kansas City, Kan.

CLAY E. COBURN, M. D. Lecturer on State Medicine.

Kansas City, Kan.

EDWARD PARK HALL, M. D., 1897, (Ensworth Medical College and Hospital). Assistant Professor of Rhinology, 1911.

Reserve Bank bldg., Kansas City, Mo.

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\* Appointed for second semester, 1911-'12.

## INSTRUCTORS.

EUGENE SMITH, M. D., 1876, (Rush). Demonstrator in Anatomy, 1903. (Mu.) 718 Kentucky.

LALIA VIOLA WALLING, A. B., 1905, A. M., 1907, (University of Kansas). Instructor in Physiology, 1908; 1905. (104 Med.) 945 Connecticut.

ESTHER WILSON, A. B., 1901, A. M., 1902, (University of Kansas). Instructor in German, 1908. (303 F.) 1135 Ohio.

NADINE NOWLIN, A. B., A. M., 1903, (University of Kansas). Instructor in Zoölogy, 1909; 1906. (206 S.) 1144 Indiana.

MAY GARDNER, A. B., 1897, (University of Kansas). Instructor in Romance Languages, 1909. (103 M.) 1200 Mississippi.

WORT S. MORSE, (Brussels Conservatory). Instructor in Violin, 1909. (N.) 2329 Jackson Ave., Kansas City, Mo.

CHARLES BURTON ROOT. Instructor in Physical Education, 1909. (RG.) 1726 Kentucky.

OLIVE MAY GILBREATH,\* A. B., 1906, (Wellesley); A. M., 1908, (University of Michigan). Instructor in Rhetoric, 1909.

ALICE WINSTON, A. B., 1898, A. M., 1903, (University of Chicago). Instructor in Rhetoric, 1909. (201 F.) 1620 Massachusetts.

ARTHUR BOWES FRIZELL,† A. B., 1893, A. M., 1900, (Harvard); PH. D., 1910, (University of Kansas). Instructor in Mathematics, 1909.

MARIA LEVERING BENSON, A. B., 1900, (Newcomb). Instructor in Design and Ceramics, 1909. (310 A.) 1126 Louisiana.

ANA JULE ENKE, PH. B., 1905, (University of Chicago). Instructor in Spanish, 1909. (304 F.) 1220 Ohio.

EDWARD RAY WEIDLEIN, A. B., 1909, A. M., 1910, (University of Kansas). Stubbs-Grenfell Fellow in Industrial Research, with rank of Instructor, 1910. (C.) 19 W. Adams.

ROSE RUTH MORGAN, A. B., 1894, A. M., 1895, (University of Kansas). Instructor in English, 1910. (201 F.) 1420 Kentucky.

THEODORE TOWNSEND SMITH, A. B., 1907, A. M., 1908, (Harvard). Instructor in Physics, 1910. (202 B.) 815 Indiana.

AMIDA STANTON, A. B., 1904, (University of Kansas). Instructor in Romance Languages, 1910. (308 F.) 20 Learned Ave.

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\* On leave of absence, 1911-'12.

† Resigned.



- CLARENCE ADELBERT NASH, A. B., 1908, (Cooper College), A. M., 1910, (University of Kansas). Instructor in Chemistry, 1910.  
(214 C.) 1332 Louisiana.
- CLARA PRICE NEWPORT. A. B., 1903, (Swarthmore); PH. D., 1908, (University of Wisconsin). Instructor in German, 1910.  
(303 F.) 1245 Louisiana.
- ALLEN ANDERS SEIPT, A. B., 1900, A. M., 1903, PH. D., 1906, (University of Pennsylvania). Instructor in German, 1910.  
(303 F.) 1644 New Hampshire.
- FLOYD CARLTON DOCKERAY, A. B., 1907, A. M., 1909, (University of Michigan). Instructor in Psychology, 1910.  
(5 A.) 1825 Barker Ave.
- HELEN MAUD CLARKE, A. B., 1903, A. M., 1907, (University of Kansas); PH. D., 1910, (Cornell). Instructor in Correspondence Study, 1910.  
(115 F.) 721 Illinois.
- GRACE MIRIAM CHARLES, A. B., 1900, (Oberlin); A. M., 1905, PH. D., 1910, (University of Chicago). Instructor in Botany, 1911.  
(201 S.) 1301 Ohio.
- HELEN GAILE JONES, PH. B., 1900, (De Pauw). Instructor in German, 1911; 1910.  
(311 F.) 1108 Tennessee.
- JEAN MACKINNON, A. B., 1911, (University of Kansas). Instructor in Chemistry, 1911.  
(C.) 1028 Vermont.
- FRANK FINCH RUPERT, A. B., 1906, A. M., 1908, (University of Kansas). Instructor in Chemistry, 1911. (C.) 945 Vermont.
- MARY LELAND HUNT, B. L., 1897, M. L., 1898, (University of Wisconsin); PH. D., 1911, (Columbia). Instructor in Rhetoric, 1911.  
(201 F.) 1133 Vermont.
- CLARA FRANCES MCINTYRE, A. B., 1900, (Radeliffe); A. M., 1911, (Columbia). Instructor in Rhetoric, 1911.  
(201 F.) 1236 Oread.
- EDWARD LAWRENCE GRIFFIN, A. B., 1911, (University of Kansas). Instructor in Chemistry, 1911.  
(106 C.) 1023 Kentucky.
- AGNES ANNE ANDERSON, A. B., 1909, (Baker University); A. M., 1911, (University of Kansas). Assistant in Food Laboratory, 1911.  
(308 C.) 1308 Ohio.
- RALPH HALL SPOTTS, A. B., 1910, (University of Kansas). Organizer, University Extension, 1911.  
(115 F.) 2001 Louisiana.
- IRVIN WESLEY HUMPHREY, A. B., 1910, (University of Kansas). Fels Fellow in Industrial Research, with rank of Instructor, 1911.  
(16 C.) 1014 Mississippi.

- WILL ELBERT VAWTER, B. S., 1911, (University of Kansas).  
Armstrong Fellow in Industrial Research, with rank of Instructor, 1911. (17 C.) 1014 Mississippi.
- ROSE ABBOTT, A. B., 1911, (University of Kansas). Instructor in Physical Education, 1911. (R.G.) 1137 Indiana.
- C. R. ST. CLAIR.\* B. S., (Ohio State University). Instructor in Civil Engineering, 1911.
- GLENN ERNEST PALMER, A. B., 1910, (University of Michigan). Instructor in Rhetoric, 1911. (201 F.) 1234 Mississippi.
- HERBERT B. HUNGERFORD, A. B., 1911, (University of Kansas). Instructor in Entomology, 1911. (102 S.) 1037 Kentucky.
- HORACE GUNTHERP, PH. B., 1905, (Hamline University); A. B., 1909, (Leland Stanford University). Instructor in Zoölogy, 1911. (S.) 1902 Rhode Island.
- JOHN J. WHEELER, A. B., (Indiana University). Instructor in Mathematics, 1911. (108 M.) 1240 Rhode Island.
- OSCAR WILLIAM MELIN, B. S. of C. E., 1910, (University of Wisconsin). Instructor in Engineering, 1911. (306 M.) 941 Kentucky.
- HAZEL HOPE MACGREGOR, A. B., 1906, (Yankton College); A. M., 1909, (University of Illinois). Instructor in Mathematics, 1911. (111 A.) 1345 Tennessee.
- HUBERT WILTFONG, Instructor in Forging, 1911. (Sh.) 1033½ Massachusetts.
- JASPER OLE HASSLER, A. B., (William Jewell). Instructor in Mathematics, 1911. (111 A.) 725 Missouri.
- CHARLES A. HASKINS, B. S., 1910, (University of Kansas). Instructor in Civil Engineering, 1911. (209 M.) 1140 Louisiana.
- NOBLE PIERCE SHERWOOD, B. S., 1905, A. M., 1911, (University of Kansas). Instructor in Botany and Bacteriology, 1911; 1910. (S.) 1709 Tennessee.
- NELLIE MAY STEVENSON, A. B., 1907, (University of Kansas). Instructor in Correspondence Study, 1911. (115 F.) 804 Kentucky.
- ARCHIE JAMES WEITH, B. S., 1908, (University of Kansas). Karpen Fellow, with rank of Instructor, 1911. (C.) 1308 Ohio.
- FRANK PETERSON BROCK, B. S., 1907, (University of Kansas). Karpen Fellow, with rank of Instructor, 1911. (C.) 1308 Ohio.

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\* Resigned.

- WARREN WHITTEMORE REED, A. B., 1907, (Harvard). Instructor in English, 1911. (201 F.) 1201 Tennessee.
- JACOB OSCAR JONES, B. S., 1911, (University of Kansas). Instructor in Civil Engineering, 1911. (8 M.) 1541 Tennessee.
- ALFRED LEWIS NELSON,\* A. B., 1911, (Midland College). Instructor in Mathematics, 1912. (111 A.) 940 Indiana.
- RAY DUNCAN LINDSEY, A. B., 1909, A. M., 1910, (University of Kansas). Instructor in Zoölogy, 1911; 1909. (206 S.) 107 Geneva.
- JOSEPH WILSON MURRAY, A. B., 1911, (University of Kansas). Instructor in Journalism, 1911; 1909. (Med.) 1400 Ohio.
- BRUNO KIESEWETTER, (Marbourg). Exchange Teacher in German, 1911. (308 F.) 1022 Ohio.
- STANLEY DAVIS WILSON,\* Instructor in Chemistry, 1911. 1006 Mississippi.
- ORVILL TURNER WILSON,\* A. B., 1907, (Emporia College). Instructor in Botany, 1911.
- JOSEPH COLBERT MCCANLES, B. S., 1907, (Kansas Christian College); LL. B., 1909, (University of Kansas). Instructor in Band Instruments, 1910. 1405 Rhode Island.
- MAUD MILLER, MUS. B., 1898, (University of Kansas). Instructor in Piano, 1908; 1904. (N.) 1232 Louisiana.
- GERTRUDE MOSSLER. Instructor in Elocution, 1908. (D.) 703 Indiana.
- ANNA LOUISE SWEENEY, MUS. B., 1906, (University of Kansas). Instructor in Piano, 1909. (D.) 711 Rhode Island.
- LOUISE WIEDEMANN, MUS. B., 1897, (University of Kansas). Instructor in Piano, 1908; 1904. (D.) 835 Massachusetts.
- WILLIAM DALTON. Instructor in Violoncello, 1911. 111 W. Henry.
- PETER THOMAS BOHAN, M. D., 1900, (Rush Medical College). Instructor in Internal Medicine. Rialto bldg., Kansas City, Mo.
- CLARENCE B. FRANCISCO, M. D., 1907, (University of Kansas). Instructor in Surgery. Rialto bldg., Kansas City, Mo.
- CLIFFORD C. NESSELRODE, M. D., 1906, (University of Kansas). Instructor in Surgical Anatomy. Portsmouth bldg., Kansas City, Kan.
- LOGAN CLENDENING, M. D., 1907, (University of Kansas). Instructor in Medicine, 1911. Rialto bldg., Kansas City, Mo.

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\* Appointed for second semester, 1911-'12.

ROBERT DOUGLAS IRLAND, M. D., 1909, (University of Kansas).  
Instructor in Obstetrics, 1911.

Keith & Perry bldg., Kansas City, Mo.

NATHAN BOGGS, M. D., (University Medical College). Instructor  
in Medicine, 1911.

Rialto bldg., Kansas City, Mo.

### ASSISTANT INSTRUCTORS.

LARRY M. PEACE, A. B., 1901, A. M., 1906, (University of Kansas). Preparator and Demonstrator in the Botanical Laboratory, 1902.

(201 S.) 846 Mississippi.

HANDEL T. MARTIN. Assistant Curator of Paleontology, 1907;  
1899.

(Mu.) 745 Arkansas.

CHARLES D. BUNKER. Assistant Curator of Mammals, Birds and  
Fishes.

(Mu.) 1746 New Hampshire.

FRANCIS XAVIER WILLIAMS, A. B., 1908, (Leland Stanford). Assistant Curator in Entomology, 1910.

(Mu. 3d Floor.) 1333 Kentucky.

EPHRAIM EDGAR LANDRUM. Assistant Instructor in Woodworking, 1909.

(Sh.) 931 Maine.

ARTHUR EARL STEVENSON, PH. C., 1909, (University of Kansas). Assistant in Drug Analysis, 1909.

(2 C.) 1300 Connecticut.

FREDERICK WILLIAM BRUCKMILLER. Assistant in Water Analysis, 1910.

(302 C.) 19 W. Adams.

GEORGE WILLIAM KLEIHEGE, A. B., 1902, (Kansas Wesleyan). Assistant Instructor in Education, 1911.

(108 F.) 1201 New Jersey.

CARL FALSTER HANSON. Assistant in Electrical Engineering, 1911.

1332 Vermont.

REGINALD KING BAILEY, A. B., 1911, (University of Kansas). Assistant Instructor in Chemistry, 1911.

1112 Delaware.

KATE SEARS. Assistant in Botany, 1911.

(302 S.) 1330 W. Warren.

ROBERT RICHARDS FISHER, B. S., 1911, (University of Kansas). Laboratory Assistant in Mechanical Engineering, 1911.

315 Walnut.

GEORGE MACMILLAN BROWN. Laboratory Assistant in Mining Engineering, 1911.

1346½ Tennessee.

GILBERT A. BRAGG. Assistant in Water Analysis, 1911.

1014 Mississippi.

CONSTANCE MCCAMMON. Assistant Instructor in Expression, 1911.

(D.) 1122 Ohio.



## LIBRARIAN AND ASSISTANTS.

- CARRIE M. WATSON, A. B., 1877, (University of Kansas). Librarian, 1887. (L.) 1310 Louisiana.
- EDITH M. CLARKE, A. B., 1895, (University of Kansas). Cataloguer, 1904. (L.) 1210 Ohio.
- CLARA SCIOTO GILLHAM, A. B., 1884, (University of Kansas). Loan Desk Assistant, 1904. (L.) 1345 Tennessee.
- MARY MAUD SMELSER. Accession Assistant, 1904. (L.) 1147 Ohio.
- MARY AGNES COLLINS, A. B., 1904, (University of Kansas). Reference Assistant, 1907. (L.) 120 W. Lee.
- SUSIE SHAFFER, A. B., 1910, (University of Kansas). Reference Assistant, 1910. (L.) 1120 Tennessee.
- NELLIE BURNHAM, A. B., 1910, (University of Kansas). Reference Assistant, 1910. (L.) 1508 New Hampshire.
- DORA RENN BRYANT, (University of Kansas). School of Engineering Assistant, 1911. (M.) 1310 Louisiana.
- ETHEL MORROW. School of Law Assistant, 1911. (G.) 1416 Kentucky.
- ORREL ANDREWS, A. B., (Fairmount College). Biology Assistant, 1911. (205 S.) 939 Tennessee.
- SARAH EVELYN STANTON, A. B., 1902, (University of Kansas). School of Medicine Assistant, 1911. Rosedale, Kan.
- ALICE BLAIR, A. B., 1911, (University of Kansas). Philosophy Assistant, 1911. 1344 Massachusetts.

## EXECUTIVE AND BUSINESS OFFICERS.

- EDWARD E. BROWN. Secretary and Purchasing Agent, 1907; 1894. (105, 109 F.) University Heights.
- GEORGE O. FOSTER, A. B., 1901, (University of Kansas). Registrar of the University, 1899; 1891. (109, 111 F.) 1022 Alabama.
- EBEN F. CROCKER. Superintendent of Buildings and Grounds, 1902. (201 Repair Shop.) University Heights.
- EARL B. CRONMEYER. Chief Clerk, 1911, 1906. (109 F.) 833 Missouri.
- MINNIE STELLA MOODIE. Secretary to the Chancellor, 1902. (103 F.) Station "A," Lawrence.

JESSIE McDOWELL MACHIR. Assistant Registrar, 1910.  
(111 F.) 345 Missouri.

ELEANOR MAUDE KIBBEY, A. B., 1895, (William Woods College).  
Assistant Registrar, School of Medicine, 1905.

Rosedale, Kan.

LESTELLA BECHTEL, G. N. Superintendent of the Bell Memorial  
Hospital, 1911.

Rosedale, Kan.

**PART II.**  
**The University.**

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# THE UNIVERSITY.

## ORGANIZATION.

The work of the University is comprehended in the schools and departments mentioned below. Everything pertaining to the University organization is under the control of the Board of Regents. Each school and department is also under the control of the Chancellor and a separate Faculty of Instruction.

## DEPARTMENTS OF INSTRUCTION.

- I.—The Graduate School.
  - II.—The College of Liberal Arts and Sciences.
  - III.—The School of Engineering.
    - 1. The Civil Engineering Course.
    - 2. The Electrical Engineering Course.
    - 3. The Mechanical Engineering Course.
    - 4. The Mining Engineering Course.
    - 5. The Chemical Engineering Course.
    - 6. The Municipal and Sanitary Engineering Course.
  - IV.—The School of Fine Arts.
    - 1. The Course in Piano Playing.
    - 2. The Course in Organ Playing.
    - 3. The Course in Violin Playing.
    - 4. The Course in Violoncello Playing.
    - 5. The Course in Voice Culture.
    - 6. The Course in Drawing and Painting.
    - 7. The Course in Expression.
  - V.—The School of Law.
  - VI.—The School of Pharmacy.
    - 1. The Short Course in Pharmacy.
    - 2. The Three-year Course in Pharmacy.
    - 3. The Collegiate Course in Pharmacy.
  - VII.—The School of Medicine.
  - VIII.—The Summer Session.
  - IX.—The School of Education.
  - X.—The University Extension Division.
- Institutions Connected with the University and under its Control.*
- XI.—The Library.
  - XII.—The Gymnasium.
  - XIII.—The Museums.
  - XIV.—The University Geological Survey.
  - XV.—The Engineering Experiment Station.

**THE GRADUATE SCHOOL.** In the College of Liberal Arts and Sciences, the School of Engineering and the School of Education, there are advanced courses leading to the degrees of master of arts and master of science, doctor of philosophy, and the higher engineering degrees. These courses have been organized into a Graduate School, open to graduates of this and, under certain conditions, other universities and colleges.

**THE COLLEGE OF LIBERAL ARTS AND SCIENCES.** The College of Liberal Arts and Sciences offers instruction in literature, science and the arts, leading to the degree of bachelor of arts. It is the central department of the University and the foundation upon which all the rest are built. The courses of study are mainly elective and presume four years of residence work.

**THE SCHOOL OF ENGINEERING** offers courses in civil, electrical, mechanical, mining, chemical and municipal and sanitary engineering, leading to the degree of bachelor of science, requiring four years of residence work.

**THE SCHOOL OF LAW** offers three years of legal instruction, leading to the degree of bachelor of laws.

**THE SCHOOL OF FINE ARTS** offers courses in piano, organ, violin and violoncello playing, voice culture, drawing and painting, and vocal expression.

**THE SCHOOL OF PHARMACY** offers two, three and four years of work in pharmaceutical study.

**THE SCHOOL OF MEDICINE** offers a complete four-year medical course. The work of the first two years is done in the laboratories at the University; that of the second two years, in the clinical laboratories at Rosedale.

**THE SUMMER SESSION** (six weeks, or nine weeks, as the student elects) is intended to meet the wants of teachers and others who wish to pursue collegiate study but are unable to attend the regular sessions of the University. Collegiate credit is allowed for certain courses offered.

**THE SCHOOL OF EDUCATION** has been developed out of the former department of education, and now embraces in organic form the numerous university forces which contribute to the direct preparation of those who elect teaching as a profession.

**THE UNIVERSITY EXTENSION DIVISION** opens various lines of activity to students who are not able to pursue courses in residence at the University. It includes lectures, correspondence courses, and the furnishing of general information.

**THE LIBRARY.** The library of the University is regarded as the center of the instructional life of the University. It is used to supplement the instruction in all departments, and also for wide reading for purposes of general information by students of the University.

**THE GYMNASIUM.** The gymnasium is the center of the physical education of the students in general, and also of the athletics of the University.

**THE MUSEUMS.** The museums are used for the storing of col-

lections valuable from a scientific point of view, and also for the purpose of supplementing the scientific instruction of the University.

**THE GEOLOGICAL SURVEY.** The University is authorized by law to carry on the State Geological Survey of Kansas, giving special attention to natural products of economic importance. The Chancellor of the University is *ex officio* director of the survey, and the work is carried on under the immediate direction of the State Geologist who is Professor of Geology in the University, assisted by other University officers. As the survey progresses reports are published from time to time bearing on scientific conditions and economic resources.

**THE ENGINEERING EXPERIMENT STATION.** This department of university activity has been organized for the purpose of effectively using the well-equipped laboratories of the University for the investigation of technical problems of importance in the industrial development of the state. A number of lines of investigation, leading to the better development and utilization of the resources of the state, have already been pursued to a successful outcome, and others are now being carried on. It is the purpose of the Experiment Station to encourage research with this object in view, and to publish the results of such investigations when completed.

## GOVERNMENT.

The legislature of 1889 passed an act providing for the government of the University and repealing all former legislation bearing upon the same subject. This act declares that the government of the University shall be vested in a board of seven Regents, six of whom shall be appointed by the governor and confirmed by the senate, and whose term of office shall be four years, that the Board of Regents shall be a body corporate, under the name of "The Regents of the University of Kansas," and as such may sue and be sued, make contracts, and hold and transfer property, both real and personal, for the University.

The Board of Regents is also invested with the power to elect a Chancellor, who shall be the chief officer of the University, and president of the Board of Regents, with the full power of a regent; to appoint professors, assistants, tutors; to increase and diminish their number as the interests of the University may require; to employ officers and employees, as in their judgment the needs of the University require.

The Board is also empowered to confer such degrees and grant such diplomas as are usually conferred and granted by institutions of learning.

## DISCIPLINE.

That the generosity of the state may not be abused, and that perfect justice may be done all who are earnestly striving to make the best possible use of the opportunities offered, there is but a single requirement, *unquestionable deportment and strict attention to university duties.*



## THE UNIVERSITY AND THE STATE.

The University of Kansas is an integral part of the free public-school system of the state. It was established by an act of the legislature of 1864, and its object, as defined by that act, is to "provide the inhabitants of the state with the means of acquiring a thorough knowledge of the various branches of literature, science, and the arts." In realizing the object thus set for it, the University stands in direct connection with the high schools of the state. It begins where the high school ends, and thus completes, for so many as avail themselves of the advantages, the thorough education which the state endeavors to provide. Persons who have completed, in any accredited high school or other institution of learning having educational standing, the work required in preparation for the University, are admitted to its privileges without examination. For this reason the high schools and academies of the state have in general arranged their courses of study in accordance with the University requirements. Though the University was established and is maintained, primarily, for the young men and women of Kansas, it also opens its doors, at very moderate tuition, to the young men and women of other states.

As the head of the public educational system of Kansas, the University endeavors to encourage whatever may contribute to the higher intellectual and moral interests of the state. Believing that the strength and value of the University are measured by its service to the state at large, and wishing to reach as many of the citizens as possible in a helpful and stimulating way, the authorities cordially invite all who desire to pursue courses of study or investigation to connect themselves with the University. All who are seeking special information or self-culture and the highest type of civic life and influence should feel that, by the generosity of the state, advice and information are freely placed at their command.

## HISTORY AND LOCATION.

The idea of a State University in Kansas dates from the early days of Kansas territorial government. Each of the constitutions adopted for the territory of Kansas during the period of its memorable struggles provided for the establishment of an institution of higher learning, to be supported by public funds. The last of these, which became, on the admission of Kansas to the Union, the constitution of the state, declares that "provision shall be made by law for the establishment, at some eligible and central point, of a State University, for the promotion of literature and the arts and sciences."

By an act of Congress, approved January 29, 1861, the day on which Kansas was admitted to statehood, seventy-two sections of land were set apart and reserved for the use and support of a State University. The state accepted the trust, and in 1863 the legislature selected the city of Lawrence as the location for the institution. One year later the legislature passed an act



organizing the University and giving to it the name of "The University of Kansas." A charter was immediately drawn up, and the government of the institution was vested in a Board of Regents, appointed by the governor.

The Board thus appointed held its first meeting on March 21, 1865, and decided to open a preparatory department as soon as the citizens of Lawrence should provide rooms for that purpose. This the citizens undertook to do, and by the middle of September, 1866, they were enabled, by the aid of gifts from various individuals and organizations, to erect the building now known as North College. The first Faculty of the University had been elected by the Board of Regents in July of the same year, and on the 12th of September the University was opened to the young men and women of the state.

In 1876 the legislature of the state established a normal department, which, though successful, was discontinued in 1885. The Law School was opened in October, 1878, and the School of Pharmacy was established in 1885. A course in engineering was arranged as early as 1873, but remained a part of the collegiate department until 1891, when the School of Engineering was organized and the collegiate department became known as the School of Arts. During the same year the preparatory department was discontinued, and the departments of music and art were combined to form the School of Fine Arts. The Graduate School was organized in 1896; and in 1899 the preparatory medical course, which had been offered in the collegiate department since 1880, was extended into a regular medical course, constituting the work of the School of Medicine. In 1904 the Board of Regents changed the name of the School of Arts to the College of Liberal Arts and Sciences. The School of Education and the Division of University Extension were established in 1909.

The Rev. R. W. Oliver, the first Chancellor of the University, resigned his position after one year of service, and was succeeded by Gen. John Fraser. In 1874 Dr. James Marvin was made Chancellor. His resignation, in 1883, was followed by the election of Dr. Joshua A. Lippincott. Prof. Francis H. Snow, who had been a member of the Faculty from the beginning, was elected Chancellor in 1890. In 1901, on account of failing health, Chancellor Snow resigned. Mr. W. C. Spangler, a graduate of the University and a member of the Board of Regents, was appointed to act as Chancellor until the election of a regular incumbent. Frank Strong, Ph. D., was elected in April, 1902, and assumed the office August 1 of that year.

The University is situated on a projection of the bluffs bordering the Kansas river valley, known as Mount Oread. There is in America no more beautiful location for a seat of learning, and no more inspiring outlook than is commanded by the campus and buildings of the University.

Lawrence is a city of about 15,000 inhabitants and is forty miles west of Kansas City. It is a healthful city, and offers many advantages as a place of residence for those desiring the benefits afforded by the University.

## BUILDINGS AND GROUNDS.

The University campus comprises 163.5 acres at Lawrence, and 7.5 acres in the campus of the Medical School at Rosedale. There are twenty University buildings, fifteen of which were erected by the state and five by private gifts. Seventeen of these buildings are used for purposes of instruction, the remaining three being the service building, heating plant and the Chancellor's residence.

## NORTH COLLEGE.

This structure was the first building to be erected. The funds for its erection, \$20,000, were secured through gifts of citizens. It is fifty feet square, three stories high, and contains eighteen rooms. It was completed in 1866, from which time until 1872 the entire work of the University was carried on within its walls. In 1872 Fraser Hall was completed, and North College was for a time closed. In 1890 it was again opened, and, until the end of the school year 1893-'94, was used by the School of Law. It is at present used by the School of Fine Arts.

## FRASER HALL.

This building was erected in 1872. The original cost of the building was \$140,500. Of this sum \$90,500 was secured from the sale of bonds issued by the city of Lawrence and \$50,000 appropriated by the state legislature. The legislature has appropriated \$42,975 for improvements and repairs on it. The building is 246 feet in extreme length, 98 feet wide in the center, wings 62 feet each. There are about sixty rooms in Fraser Hall, of which one, the main audience room containing an electric pipe organ, is 94 feet long and 56 feet wide. This room has a seating capacity of 1200. In this building are located the executive offices of the University, including the Chancellor's office, the office of the Secretary, and the office of the Registrar. The building is named in honor of Gen. John Fraser, the first active Chancellor of the University.

## MEDICAL HALL.

This building was erected in 1884, at a cost of \$12,000—\$8000 from interest on the permanent endowment fund of the University, and \$4000 appropriated by the legislature. It is in the form of a T, the main part, extending east and west, being 80 by 35 feet; and the L north of this is 40 feet square. The physiological laboratory is located in a large room on the second floor. The east wing of this floor is occupied as a lecture room, and is capable of seating seventy-five students. The entire basement is occupied by the department of journalism, with press, composing, and editorial rooms.

## SNOW HALL.

This structure was erected in 1886, from a \$50,000 appropriation by the legislature. It is 110 feet in length by 100 feet wide, two stories in height, each 16 feet in the clear, is provided with

an attic of 12 feet, and with a basement almost entirely above-ground. The geological department occupies the two southeast rooms of the first floor, and the departments of zoölogy and botany use the large west room of this floor for laboratory purposes. The entire second floor is devoted to laboratories for advanced work in botany and zoölogy. The west room of the third floor is used for geological collections. The south room is the botanical museum. The department of drawing and painting occupies the remainder of the third floor. On the first floor of the east half is a large lecture room which has accommodations for 200 students. The building is named in honor of Professor Francis Huntington Snow.

### HEATING PLANT.

This building was erected by the state in 1887, at a cost of \$16,000. For many years part of the structure was used by the Engineering School for shop-work purposes. On March 22, 1898, fire almost completely destroyed the building. In the same year it was rebuilt and equipped at a cost of \$30,000 from funds lent by the citizens of Lawrence. This money was returned by the legislature of 1899. An addition was built in 1908, at a cost of \$2500, appropriated by the legislature.

### SPOONER LIBRARY.

This building was erected in 1894, at a cost of \$75,000, by the generosity of William B. Spooner, of Boston. Its length is 112 feet and its extreme width 50 feet. The building is two stories high, with a basement the greater part of which is above-ground. On the first or main floor are located the general reading room, a newspaper room, and the Librarian's and Cataloguer's offices. The reading room is admirably arranged and lighted. In the newspaper room are kept the county and city weeklies and dailies published within the state. In addition, dailies published in all the larger cities of the United States are kept on file. The second floor of the building is also devoted to library purposes. In the basement are seminary rooms used for study purposes by the various departments. The building is lighted throughout by electricity.

### CHANCELLOR'S RESIDENCE.

This building was erected in 1894, at a cost of \$12,000, from the William B. Spooner bequest. By action of the state legislature it was occupied by Dr. Francis H. Snow until his death in 1908. It is now the official residence of the Chancellor of the University.

### BLAKE HALL.

This building is of Cleveland, Ohio, sandstone, and was erected by the state in 1895 at a cost of \$58,000. The building is approximately 110 feet in length by 70 feet in extreme width, and contains two stories, a high basement and an unfinished third story. It is occupied chiefly by the department of physics and



electrical engineering, and is named for Dr. Lucien Ira Blake, formerly professor of physics and electrical engineering at the University.

### FOWLER SHOPS.

This building was completed in 1899 at a cost of \$21,000, and is the gift of Mr. George A. Fowler, of Kansas City, Mo., as a memorial of his father. It is devoted primarily to instruction in machine construction methods, containing woodworking and pattern-making room, forge room, and metal-working room or machine shop. A foundry has been equipped in a room vacated by the removal of the power plant. The hydraulic laboratories of the Engineering School occupy rooms temporarily in this building. The building is of native stone, and is 224 feet long by 50 feet in width, two stories high, with attic and tower, containing about 20,000 square feet of floor space for instructional purposes.

### THE CHEMISTRY AND PHARMACY BUILDING.

This building was completed in 1900 at a cost of \$70,000, appropriated by the legislature. The material used is native limestone, laid in horizontal courses, with recessed pointing. The building is arranged specifically for laboratory purposes for the departments of chemistry and pharmacy. It is 187 feet long, and its greatest width is 70 feet. The ground plan shows a central portion devoted to offices, private laboratories, supply rooms, balance rooms, and smaller recitation rooms, and two wings. The building is three stories in height, with a basement of the same height as each of the stories above; beneath the basement floor there is an air space of four feet down to the solid rock on which the foundations are laid. The system of heating and ventilation, which has been arranged with special care, includes a fan blower, run by electric power, which forces tempered air over steam coils and thence into the laboratories and lecture rooms. The air thus brought into the rooms is carried out by hoods on the sides of the rooms, which are connected with nine-inch tiles terminating in the chimneys above the roof, each hood being ventilated by an independent flue.

### THE NATURAL HISTORY MUSEUM BUILDING.

This building, erected by the state in 1902 at a cost of \$75,000, furnishes a safe home for the natural-history collections, estimated to be worth \$300,000. The upper floor is devoted to the collections in entomology and paleontology. The remainder of the building is used for the exhibition of mammals and birds. The offices are occupied by the curator of mammals, birds, and fishes, and the curator of the entomological collections. The workrooms of the taxidermist are in the basement. Part of the basement is occupied by the School of Medicine.



## GREEN HALL.

Green Hall, erected by legislative appropriation, at a cost \$65,000, was occupied by the School of Law in the fall of 1905. It is a two-story structure, with basement, is 120 feet long and 60 feet wide, and is made of gray pressed brick. The second story is practically given over to the law library and reading room, which is approximately 116 feet long by 40 feet wide. This building is named in honor of the Dean of the School of Law, James Woods Green.

## THE ROBINSON AUDITORIUM-GYMNASIUM.

The legislature of 1905 appropriated \$100,000 for a building for a gymnasium and auditorium. This building is 178 feet long by 144 feet wide at the wings, with an average width of 90 feet, and has three stories, including the basement. In the basement are arranged locker rooms, baths, dressing rooms for the athletic teams, and swimming pool. The first story contains a gymnasium for men and another for women, a trophy and reception room, and offices for the directors of the work for men and women, respectively. The second story contains a clear floor space 70 x 127 feet. A running track in the gallery extends entirely around this floor. By removing the apparatus this floor may be transformed into an auditorium with a seating capacity of 3000 people. Around this auditorium, and opening out from it, are rooms for handball, boxing, wrestling, fencing, a room for special classes, and a Faculty room. The arrangement and equipment of this building are modern in every particular. The building is named in honor of Charles Robinson, first governor of Kansas, and his wife, Mrs. Sara T. D. Robinson.

## THE ELEANOR TAYLOR BELL MEMORIAL HOSPITAL.

The first section of the Bell Memorial Hospital was erected in 1905 on property given to the University for that purpose by Dr. Simeon B. Bell, of Rosedale, and named in memory of his wife. This medical pavilion cost about \$30,000. In 1911 a second section in connection with the first was built through an appropriation by the legislature of \$50,000. The first section was remodeled for use largely as a nurses' home. It also contains the general dining rooms, kitchens, laundry rooms, and so forth. The second section is a well constructed fire-proof building and is an attractive and efficient hospital. It has four floors with large porches commanding a beautiful view to the west and southwest. The combined hospital has about seventy-six beds and is used as a teaching hospital. To it are sent county patients under the indigent poor law, the crippled children law, and the obstetrical service law. The new hospital was opened for service in October, 1911.

## THE CLINICAL LABORATORY.

This forms an intrinsic part of the Eleanor Taylor Bell Memorial Hospital, and is a brick building 50 x 100 feet, of three stories, erected at a cost of \$40,000. It has concrete floors and a general fireproof construction. The teaching laboratory is a room 100 x 30 feet. From this open four small workrooms for instructors. There are three lecture rooms, a library, offices for the Dean and Superintendent, and also a morgue and an animal room. This building crowns the hill, and will eventually be surrounded by five or six hospital pavilions, similar to the medical pavilion already built.

## THE SERVICE BUILDING.

This building, erected in 1908, contains the office of the superintendent of buildings and grounds, a pipe shop, a carpenter shop, a paint shop, rooms for storage of supplies, and also houses the University fire-fighting apparatus.

## MARVIN HALL.

This building has been erected at a cost of about \$90,000, appropriated by the legislature of 1907, and contains equipment for the general work of the School of Engineering. It is a four-story structure, the three upper floors being devoted to classrooms, drafting rooms, offices, a school library, instrument rooms, blue-printing rooms; etc., and the basement principally to laboratories. It is 187 feet on the front by 64 feet in depth, with a wing at the east end 56 feet wide extending 29 feet to the rear. The heating, ventilating and lighting systems are complete and modern in every respect. This building is named in honor of F. O. Marvin, Dean of the School of Engineering.

## POWER PLANT AND MECHANICAL LABORATORY.

This building was completed in 1909 at a cost of about \$23,000. It is built of native stone, is 100 feet by 94 feet, and in two distinct sections. It will be used for the purposes indicated by the name, and is the beginning of a system of engineering laboratories which are intended to number five when completed. The distinctive feature of the building is the roof, designed to give the maximum of light for interior work, it being of the "saw-tooth" type characteristic of many recent important manufacturing plants and laboratories. In the power-plant section are power-generating machinery for lights and power for the University and the pumps for regular water service and fire protection, valued at \$37,000. The laboratory section contains equipment for instruction in technical engineering work, particularly in power development, valued at \$25,000.

## HAWORTH HALL.

The building for geology and mining was completed in August, 1909. It is a three-story building, approximately 60 feet by 110 feet in size, with an annex for mining and ore-dressing laboratories, 40 by 80 feet. The first floor of the building provides two offices, one private laboratory for advanced quantitative work, one large general blowpipe laboratory for mineralogy, one classroom, a drafting room, a fireproof vault for preserving drawings, manuscripts, etc., a museum room for storing mining machinery, and other lesser rooms. The annex provides laboratory facilities for various phases of mining and ore dressing, and is equipped with necessary machinery driven by electric motors, and other appliances for illustrating fully modern methods of ore separation. The entire lower story has a cement floor throughout, and the tables in the blowpipe laboratory are made of metal and concrete in order to guard against danger from fire. The second floor contains two large museum rooms for mineralogy, economic and dynamic geology. They are equipped with oak-veneered, plate-glass show cases around the entire walls of the two rooms, which provide nearly 1000 feet of shelving. The remaining floor space will be occupied by additional cases for museum material and work tables for advanced students. Two office rooms also are on this floor. The third floor contains a library room, two lecture rooms, a large laboratory for students in elementary geology, a petrographic laboratory, and a private laboratory for advanced research. The building is lighted throughout by electricity, is heated by steam, and is commodious and useful. A \$7500 clay laboratory was added to the building in 1911. This building is named in honor of Erasmus Haworth, professor of geology and state geologist.

## LIBERAL ARTS BUILDING.

The east wing of a Liberal Arts Building which, when completed, will cost \$500,000, was erected in 1911, and is now occupied by several departments of the College.

## UNIVERSITY ALUMNI ASSOCIATION.

THE ALUMNI ASSOCIATION is composed of all persons holding degrees granted by the University, though active membership is limited to those who pay annual dues. An endowment membership is maintained for those who subscribe to the endowment fund. An associate membership was established in 1909 for such former students of the University, not graduates, as pay the associate membership dues. Such former students may also become associate-endowment members. The control of the affairs of the association is in the hands of a board of ten directors. A general secretary is employed, whose office is at the University, and who has charge of the publications of the association, and keeps, so far as possible, a complete record of facts concerning alumni. The *Graduate Magazine*, of which the secretary is editor, is sent to all active members of the association. The regular meetings of the association occur during commencement week of each year, at which time the annual alumni address is delivered at the University by some one from among the alumni.

### OFFICERS OF THE ALUMNI ASSOCIATION.

Charles F. Scott, A. B., '81.....*President.*  
John A. Prescott, A. B., '88.....*Vice President.*  
L. N. Flint, '97, Lawrence.....*Secretary-Treasurer*  
*and Editor of Graduate Magazine.*

DIRECTORS.

Term exp.

J. C. Ruppenthal, '95, <i>Chairman</i> .....	1913
Anna Drake McClung, <i>fa</i> '96.....	1912
M. A. Barber, '91.....	1912
Caroline B. Spangler, '83.....	1913
Irving Hill, '96.....	1914
S. C. Emley, '99.....	1914
Olin Templin, '86.....	1915
Clara Morris Perkins, '77.....	1915
William Y. Morgan, '85.....	1916
J. Clyde Nichols, '02.....	1916

## RELIGIOUS.

CHAPEL EXERCISES. Exercises are held in the University chapel every morning from 10 to 10:15. Though attendance is not required of students, all are cordially invited, and the services are made as attractive and profitable as possible. They consist of the doxology, Scripture reading, prayer, a hymn, and



occasional addresses by the Chancellor and others. On Friday mornings the chapel exercises are held from 10 to 10:30, at which time addresses are made by speakers from abroad or by members of the Faculty of the University. During the academic year of 1911-'12 to May 1, addresses were delivered by Chancellor Frank Strong; Mrs. Gertrude Blackwelder, of Chicago; Dr. W. N. Mason, of Baker University; Rev. L. G. Morong, of Kansas City, Kan.; Mr. George Sherwood Eddy, of New York city; William Douglas Mackenzie, of Hartford, Conn.; Rev. E. E. Stauffer, of Lawrence; Dean F. W. Blackmar; Mr. Raymond Robbins, of Chicago; Rev. Stanton Olinger, of Lawrence; Rabbi David L. Licknaitz, of Leavenworth; Rev. W. A. Powell, of Lawrence; E. H. Whuerpel, of St. Louis; Chaplain Silvers; Captain Palmer Pierce, of Fort Leavenworth; Prof. John Lomax, of the University of Texas; Mrs. Ella Bond Johnston, of Richmond, Md.; Rev. Noble S. Elderkin, of Lawrence; Hon. S. N. Hawks, Dr. S. S. Estey, of Topeka.

On Tuesday mornings the chapel address ordinarily is delivered by a member of the University Faculty. The following Faculty members and others were speakers during the year 1911-'12: Dr. M. T. Sudler, Chancellor Frank Strong, Dr. Margaret L. Johnson, A. W. Trettien, W. C. Stevens, Merle Thorpe, E. F. Engel, Dr. S. J. Crumbine, F. B. Dains, W. O. Hamilton, F. W. Blackmar, Arthur Mitchell, W. A. Griffith, W. G. Mitchell, Rev. Stanton Olinger, W. H. Carruth, W. L. Burdick, F. H. Hodder, D. C. Croissant, G. E. Putnam, A. S. Olin, H. L. Jackson, C. I. Corp, Mrs. Maude Wood Park, F. O. Marvin, Melville Stone, Tom Nossan, H. P. Cady, W. E. Higgins, L. V. Redman, W. J. Baumgartner, S. J. Hunter.

**UNIVERSITY VESPER SERVICE.** This is held every Sunday afternoon. The service is largely musical, though there is usually also a brief address. The music, aside from the congregational singing, is furnished by the Vesper Chorus, conducted by the professor of voice training. The speakers for the past year have been: Dr. William Douglas Mackenzie, of the Hartford (Conn.) Theological Seminary; Dr. John E. Boodin, of the University of Kansas; Dr. Henry Churchill King, of Oberlin College.

**THE UNIVERSITY OF KANSAS INSTITUTE FOR RELIGIOUS EDUCATION.** This is held during one week in the spring of each year. In 1912 the institute occurred March 15-21. The institute has in successive years been in charge of Dr. Frank K. Sanders, now president of Washburn College, Professor Patton, now of McGill University, Dr. Lyman Abbott, editor of the *Outlook*, Prof. Hugh Black, of Union Theological Seminary, Pres. Frank K. Sanders and Dr. Washington Gladden, of Columbus, Ohio, Prof. Shailer Mathews, of the University of Chicago, Pres. Frank K. Sanders, and Pres. Henry Churchill King, of Oberlin College.

## YOUNG MEN'S CHRISTIAN ASSOCIATION.

This is the largest organization among the students of the University, over five hundred men being members. The association is strictly nonsectarian in character. It stands for clean, Christian manhood in the University and aggressive Christian work for and by students. The various activities of the Association are carried on by the members themselves, under the direction of a board of directors, and a general secretary whose entire time is devoted to the work. Meetings for men are held each week, at most of which an address is delivered by an out-of-town speaker. Among others, the following men were brought to the University to speak to men during the year 1911-'12: William Howard Taft, President of the United States; Dr. Winfield S. Hall, of Northwestern University Medical School; J. K. Coddington, warden of the Kansas State Penitentiary; L. A. Halbert, superintendent of the Kansas City Board of Public Welfare; C. A. Sumner, secretary of the City Club of Kansas City; Dean Walter Taylor Sumner, chairman of the Chicago Vice Commission; Henry J. Allen, editor of the *Wichita Beacon*, Hon. H. M. Beardsley, ex-mayor of Kansas City; Tom Blodgett, of Wichita; Dr. William F. Kuhn, of Kansas City; Judge Clark A. Smith of the Kansas supreme bench; C. W. Felt, chief engineer of the Santa Fe railway.

In coöperation with the churches and the Christian and Presbyterian Bible chairs, the association offers a large number of Bible-study courses, under the leadership of University professors and advanced students. A number of courses in the study of missions are also given. The association is largely responsible for the support of its former general secretary, Mr. H. C. Herman, who is now engaged in association work in India, \$1100 being contributed for this purpose.

Through the courtesy of the University Bible chair of the Christian Woman's Board of Missions, the association shares large and commodious quarters at Myers Hall, one block north of the University library. Here are held not only the weekly religious meetings of the association, but social affairs from time to time, Bible classes, meetings of the various association committees, etc.

The association arranges for the meeting of trains at the opening of the University in the fall, maintains a rooming-house directory, and assists students in finding desirable locations. The employment bureau, under the direction of the University, renders all assistance possible to students desiring to earn a part of their expenses. The association issues a student's handbook, giving valuable information to prospective students, which will be sent free upon request. Address all correspondence to Roy Stockwell, General Secretary, 1300 Oread Avenue, Lawrence.

**YOUNG WOMEN'S CHRISTIAN ASSOCIATION.** This is an organization of 300 University women, with a permanent sustaining membership of over 100 Faculty women and alumnæ, who give

the association their active support. The association employs a general secretary, who gives all her time to the direction and supervision of its work. The purpose of the association is five-fold: (1) To develop and deepen the spiritual and moral life of the young women of the University, and to bring to them the conception that no part of their life lies outside of their religion; (2) to be the medium between the women students of the University and the churches of Lawrence; (3) to give practical aid to women students whenever they are in need of it; (4) to be one of the agencies to create the best social standards; (5) to train young women to become efficient workers in church and philanthropic organizations.

Religious services are held weekly, on Wednesday afternoons at 4:45, in room 110, Fraser Hall. During the opening week of the fall term members of the association may be found in the association rest room (room 114, Fraser Hall), ready to assist Freshman girls in registering and finding classrooms and rooming and boarding places.

Information concerning boarding and rooming places and employment for girls may be obtained by applying to the general secretary, Miss Nadia Thomas, 1134 Louisiana street, Lawrence, Kan.

**RELATION TO CITY CHURCHES.** The churches of Lawrence unite in extending to the University students a cordial invitation to enter with them into Christian fellowship, and endeavor to make them feel that, irrespective of church membership, they are welcome to all the privileges which the church affords. To this end the various churches hold receptions for the students at the beginning of each year, the pastors preach special sermons from time to time, and the young people's societies arrange for social gatherings to which the students especially are invited. There are also organized, in the principal Sunday schools of the city, classes for University students, a number of these classes being in charge of University professors.

By these means the students are brought into close contact with the religious life of Lawrence. A religious census of the student body during the past few years shows that an average of eighty-six per cent of the students have religious preferences, sixty-three per cent are church members, and that a large number are actively engaged in the work of the various churches and organizations connected therewith throughout the city.

**THE BIBLE CHAIR.** April 1, 1901, the Woman's Board of Missions of the Christian Church established a chair of Biblical instruction at Lawrence for the benefit of University students. A site was purchased on Mount Oread, adjoining the University campus, where, in a building (Myers Hall) erected for the purpose, the work is carried on. To accommodate the growing work, a \$10,000 addition was made to Myers Hall in 1911, affording more lecture rooms and offices, and an assembly room seating five hundred. In this enlarged hall a room was added for a library and museum of missions.



There is no organic relation between the Bible chair and the University. Its support rests entirely upon private gifts. No fees are charged. The privileges are offered to all students, without regard to their religious affiliations, and the courses are arranged to meet their convenience.

The instruction is nonsectarian. The purpose of the work is to give students a more intimate acquaintance with the Bible, and to render them assistance in their religious life.

The courses include studies in both the Old and New Testaments, and the history of missions, and the great religions of the world. Work in the Hebrew language is offered to such as are interested. Wallace C. Payne, A. B., A. M., (Bethany College), B. D., (Yale University), occupies the chair. Mrs. W. C. Payne is associated with him.

During the eleven years now closing about 2400 students have taken advantage of the opportunity thus given to acquaint themselves more fully with the Bible.

Mrs. W. C. Payne will lecture upon "The Women of the Bible," "The History of Missions," "The Lives of Great Missionaries," and "The Parables of Jesus."

In addition to the studies given at the lecture room, 1300 Oread avenue, during the school year 1912-'13, special attention will be given group classes for Bible study in private, fraternity and sorority houses.

The library, with valuable works on Bible study, missions, religion, Christian sociology, the Sunday school, and related subjects, is accessible to all.

Any one desirous of further information may address Prof. W. C. Payne, Myers Hall, 1300 Oread avenue, Lawrence, Kan.

**WESTMINSTER ASSOCIATION.** In 1905 the Presbyterians of Kansas organized Westminster Association for the purpose of offering Biblical instruction to and affording pastoral care for the students of the University. On October 7, 1910, Westminster Hall, the gift of W. W. Cockins, Lawrence, Kan., was dedicated. The hall is well adapted to class work and also affords a center for the social life of the students. In June, 1911, Rev. Stanton Olinger, A. B., A. M., (Kansas University), B. D., (Princeton), was elected principal. Mrs. Olinger is associated with him in the work of the hall.

The following courses are offered: A four-year course in Bible history; the Bible and Modern Science; the Lives and Doctrines of the Prophets; Pauline Theology; Missions and World Problems; Comparative Religions; the Sources of the Bible; and the Evidences of Christianity.

There is no organic connection with the University. The teaching is nonsectarian and without charge. All students are welcome to the social life of the hall. Hon. Thomas Potter, of Peabody, has placed in the hall the Dwight Potter memorial library for the use of the students.

All correspondence relative to the work of the Westminster Association should be addressed to Prin. Stanton Olinger, 1221 Oread Ave., Lawrence, Kan.



## SOCIAL AND LITERARY.

**ASSOCIATION OF THE LADIES OF THE FACULTY.** The women connected with the University as instructors and the wives of instructors form an association whose purpose is to promote the social welfare of the young women students, and to further an acquaintance between themselves and these students. To this end, besides holding general receptions and meetings for the discussion of questions of common interest, twice a month, on Fridays, the Ladies of the Faculty give an afternoon tea for the young women of the University. A committee of the association meets the young women at the University during the opening week of the year, and assists them in finding suitable boarding and rooming places. Students are always welcome in the homes of the Faculty.

**THE PHI BETA KAPPA SOCIETY.** The Kansas Alpha chapter of this society was organized in April, 1890. The object of the society is, primarily, the promotion of scholarship in the University. To this end, a portion of the members of the graduating class of the College, never to exceed one-sixth, who have made high records for scholarship in their University studies, are elected to membership.

**GERMAN CLUB.** The membership of this club, which meets once a week in the large German recitation room, consists of such students as have made sufficient progress in German to take active part in the programs. The object of the club is to furnish the student special opportunity to familiarize himself with the spoken language, and to promote an interest in all that is German. Musical and literary programs, rendered by the students, alternate with talks or lectures by members of the Faculty or outside speakers, and the meetings are conducted exclusively in German. A special feature in connection with the club is the German play, which is given each year by the students of the department.

**THE QUILL CLUB** is an organization of students and instructors especially interested in English composition, which meets to hear and discuss original productions presented by members and others. The best of this material is published by the club.

**ENGLISH JOURNAL CLUB.** This is composed of the instructors and advanced students in the department of English language and literature. It holds meetings twice a month, at which the members report upon and discuss the leading journals devoted to English scholarship and research.

**FRENCH CLUB.** The instructors and students in the French department compose the *Cercle Français*, which meets once a week to present a brief literary program, reviews of articles in the leading French magazines, and reports on French topics. French only is used, as one of the chief objects of the club is to provide better opportunities than can be offered in the class-

room for the practice of the spoken language. Another opportunity for such practice is found in the French play, which is given towards the close of the year by the students of the department.

THE GREEK SYMPOSIUM consists of the instructors and students of the Greek department, who meet once a month for the reading of papers and discussion of topics which are either too general or too special for class work. The meetings are held in the evening, at the home of one of the instructors, and the special program is followed by a social hour.

SPANISH CLUB. The Centro Español has been formed on the same general lines as the French club for those students who wish to acquire facility in the use of spoken Spanish. At its weekly meetings, besides programs of a literary character, news of the Spanish-speaking world is reported and discussed. The Spanish play gives further opportunity to acquire readiness in speaking.

### SCIENTIFIC.

THE SIGMA XI SOCIETY. The Iota chapter of this scientific honorary society was established at the University in 1890. The society confers the honor of election to membership upon instructors and students who have shown special aptitude along scientific lines, especially with regard to research work. This chapter holds monthly meetings for the reading and discussion of scientific papers, and is the center about which the scientific interests of the University are gathered.

CHEMICAL CLUB. This is composed of the instructors and advanced students in the department of chemistry and pharmacy. Weekly meetings are held, and the programs include reports on research work by instructors and students, reports on scientific meetings and associations, reviews of new books and important articles in chemical journals, and notices of important inventions and new chemical processes.

CIVIL ENGINEERING SOCIETY. This is maintained by students, under the guidance of the instructors in the department. It holds monthly meetings and is frequently addressed by practicing engineers, besides maintaining a program of papers and discussions.

UNIVERSITY OF KANSAS BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. This is composed of instructors and students who are associate members or student members of the national organization. It holds biweekly meetings, for the discussion of papers presented before the national meetings of the association, and other papers. Current engineering literature is reviewed, and as often as possible addresses by prominent engineers are secured, with the aim of acquainting the students with current engineering practice and problems. All electrical engineering students are free to attend these meetings.

**UNIVERSITY OF KANSAS STUDENT SECTION OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.** This is essentially a student organization, under the supervision of a Faculty member of the national society. Weekly meetings are held for reports on current engineering literature, with occasional addresses by outside engineers. An annual meeting is held in December, usually with several visiting members of the national society giving technical papers.

**AFFILIATED STUDENTS' SOCIETY OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.** This is a society composed of junior and senior students and Faculty members of the department, which enjoys the advantage of association with the Institute. Meetings are held monthly for the discussion of the publications of the Institute and the presentation of papers. All students in the last three years of the course meet each week in the Mining Journal for the consideration of professional literature and discussion of subjects of interest. Addresses are frequently given by University engineers.

**THE PHARMACEUTICAL SOCIETY.** This society was organized in December, 1886, by students and instructors of the department, for the purpose of assisting each other in the study of sciences especially related to the art of pharmacy, in the practical applications of the same, and for friendly intercourse. Meetings are held biweekly during the school year.

### DEBATING.

**DEBATING COUNCIL.** The council is made up of three members of the Faculty appointed by the University Council, and two representatives chosen from each of the literary societies of the University; and under its supervision are held all preliminary and interstate debates. At present, annual debates are held with the University of Colorado, the University of Oklahoma, and the University of Missouri. The K. U. Debating Society is open to all men of the University. This society meets weekly, and is interested, primarily, in effective argumentative public speaking.

### DRAMATICS.

**DRAMATIC CLUBS.** The students of the University maintain three dramatic clubs for the study and the presentation of modern plays. Membership in these clubs is open to all students and is secured by dramatic trials held at stated intervals.

### MUSICAL.

**ORCHESTRA.** Young men and women of the University form an orchestra each year to furnish music for special convocations, and to make a study of orchestral masterpieces. The orchestra is under the direction of the Dean of the School of Fine Arts. Annual concerts are given.

**MEN'S GLEE CLUB.** The Men's Glee Club is under the direction of the head of the department of voice training of the

**School of Fine Arts.** The general control of the club, as to financial obligations and tours, is in the hands of a committee of the University Council. The annual concert is an important University event. The club was the guest of the Santa Fe railroad on a tour to the Pacific coast in February, 1912.

**VESPER CHORUS.** The Vesper Chorus is composed of leading singers of the city and University, and takes part in the weekly vesper services. It is under the direction of the professor of voice training.

**BAND.** The University Band is a permanent organization, fully uniformed, and directed by a professional leader. The band furnishes music at the various athletic contests held at the University and for other student gatherings, and gives several concerts annually.

**THE FESTIVAL CHORUS.** The Festival Chorus is composed of musical people of Lawrence and students of the University. The director is the Dean of the School of Fine Arts. The Festival Chorus undertakes the chorus work for the annual spring music festival at Lawrence.

**OPERA.** An opera is given each year by students of the voice department, accompanied by the University Orchestra. The opera for 1912 was "The Yeoman of the Guard."

### CONCERTS, ADDRESSES, AND ART EXHIBITIONS.

#### CONCERTS AND RECITALS, 1911-'12.

- OCTOBER .....Violin recital, by Hugo Kortschak.  
Faculty recital.  
Two student recitals.
- NOVEMBER .....Fourth annual convention of the Kansas State  
Music Teachers' Association.  
Song recital, by Marion Green.  
Two student recitals.
- DECEMBER .....Piano recital, by Silvio Scionti.  
Organ recital, by Dean Skilton.  
Student recital.  
Annual Christmas concert of the School of  
Fine Arts.
- JANUARY .....Piano recital, by Myrtle Elvyn.
- FEBRUARY .....Fifth annual opera of the School of Fine Arts,  
"The Yeomen of the Guard."  
Harp recital, by Alice Genevieve Smith.  
Song recital, by Ruth Standish Cady.  
Two student recitals.  
Glee Club concert.
- MARCH .....Violin recital, by Albert Spalding.  
Song recital, by Elizabeth Wilson.  
Two student recitals.



## CONCERTS AND RECITALS, 1911-'12.

- APRIL ..... Song recital, by John Hoffman.  
 Ninth annual music festival.—Three concerts,  
 by Namara-Toye, soprano; Willy Lamping,  
 violoncellist; the Minneapolis Symphony Or-  
 chestra, and soloists.  
 Four graduating recitals.  
 Eight graduating recitals.
- MAY ..... Graduating recitals.  
 Annual commencement concert of the School  
 of Fine Arts.
- JUNE ..... University Orchestra concert.  
 Commencement organ recital, by Dean Skilton.

## ADDRESSES.

The following University addresses were delivered at the University during commencement week, 1911:

JUNE 4, 1911. Baccalaureate sermon, William Frederick Slocum, D.D., LL. D., president of Colorado College.

JUNE 6, 1911. Alumni address, Solon Thacher Gilmore, '86, LL. B., '88. Subject: "The Alumni of a State University."

JUNE 7, 1911. Commencement address, Albion Woodbury Small, Ph. D., LL. D., professor of sociology in the University of Chicago. Subject: "Modernism."

The following general University addresses were delivered during the academic year 1911-'12; all University students were admitted to these addresses without charge:

SEPTEMBER 24. William Howard Taft, President of the United States. Subject: "The Young Men's Christian Association as a World-wide Influence."

NOVEMBER 10. Professor R. B. Evans, of Ohio State University.

NOVEMBER 28. Rev. Elmer S. Forbes, of Cambridge, Mass. Subject: "Social and Public Service."

NOVEMBER 28. Dr. O. P. Hay, of the American Museum of National History. Subject: "The Ice Age and Some of Its Animals."

DECEMBER 4-5. Dr. G. F. Swain, of Cambridge, Mass. Subjects: "The Quebec Bridge and Its Fall"; "Relation of Forests to Stream Flow, and Importance of Forest Conservation."

JANUARY 25. Dean W. T. Sumner, chairman of Chicago Vice Commission. Subject: "Some Aspects of Civic and Social Progress."

FEBRUARY 8-9. Mr. Leotsakos, of Greece. Two lectures. "Ancient and Modern Greece," illustrated.

FEBRUARY 15-16. Mr. E. H. Wuerpel, of St. Louis. Two lectures. "Whistler, the Painter"; "Whistler, the Man."

FEBRUARY 19. Doctor W. Johannsen, of the University of Copenhagen. Subject: "Some Problems in Heredity."

FEBRUARY 19-23. Professor C. Alphonso Smith, of the University of Virginia. Five lectures. "The American Short Story"; "American Humor"; "Idealism in American Literature"; "Joel Chandler Harris"; "Edgar Allen Poe."

FEBRUARY 23. Governor Woodrow Wilson, of New Jersey. Subject: "The Scholar in Politics."

FEBRUARY 26. Hon. Henry Allen, editor of the *Wichita Beacon*. Subject: "Christianity and the Business World."

MARCH 8. Professor John A. Lomax, of the University of Texas. Subject: "Cow-boy Songs and Other American Ballads."

MARCH 11-22. Dr. John M. Coulter, professor of botany in the University of Chicago. A series of lectures on "The Evolution of the Higher Plants."

MARCH 15. Professor Calvin O. Davis, of the University of Michigan. Subject: "A New Era for the American High School."

MARCH 15. Mrs. Ella Bond Johnston, of Richmond, Ind. Subject: "A Democratic Art Movement."

MARCH 15. Hon. E. T. Fairchild, state superintendent of public instruction. Subject: "The Weak Link in Our Educational System."

MARCH 15. Dr. S. J. Crumbine, secretary State Board of Health. Subject: "Public Health and Public Education."

MARCH 15-21. President Henry Churchill King, of Oberlin College. Six lectures. General subject: "Religion as Life."

MARCH 15-21. President Frank K. Sanders, of Washburn College. Six lectures. General subject: "The Apocalyptic Writings and Ideas of Judaism and Christianity."

#### ART EXHIBITIONS.

An annual exhibition of works of art is held at the University, together with a course of lectures upon subjects related to the fine arts. The exhibition this year was held February 5-28. At the close of the year there is held an exhibition of work done by pupils of the department of drawing and painting.

#### ATHLETIC.

**ATHLETIC ASSOCIATION.** This association is organized to encourage and promote the physical education and hygienic training of matriculates and graduates of the University of Kansas, and to foster and supervise athletic games, such as baseball, boating, football, tennis, track athletics, basket ball, and similar sports, in connection with the University. Membership in the association is open to all students, graduates, officials, and members of the Faculty.

**THE GOLF CLUB** has its links on the University grounds. It

is a self-supporting, independent organization, and membership is open to students of the University.

**GENERAL ATHLETICS.** The general athletics of the University include football, baseball, basket ball, tennis, and other forms of exercise.

**INTERCOLLEGIATE GAMES** are played at various times during the year with the teams of neighboring universities.

**CONTROL.** All forms of exercises, athletics and games are under the control of the director of gymnasium and his assistants.

**THE ATHLETIC BOARD.** All intercollegiate athletic contests are under the control of the University Athletic Board, composed of four students elected by the students, four Faculty members elected by the University Council, the Chancellor of the University, the president of the Athletic Association, and the professor of physical education. The last three are *ex officio* members.

**RULES.** The University Council has adopted rules governing the standing of all those who represent the University in athletic contests. Good scholarship and gentlemanly conduct are required of all such contestants.

### UNIVERSITY PUBLICATIONS.

**THE UNIVERSITY OF KANSAS SCIENCE BULLETIN**, formerly the *Kansas University Quarterly*, is maintained by the University as the medium for the publication of the results of original research by members of the University. Papers are published in it only on recommendation of the committee of publication, which committee is composed of five members of the scientific Faculty. Formerly the *Quarterly* was issued at regular intervals, as indicated by the title, but numbers of the present series appear without regard to specific dates. A volume consists of about 400 pages, with the necessary illustrations. The price of subscription is three dollars a volume. Individual numbers vary in price with the cost of publication. Exchanges with similar publications of other colleges or universities and learned societies are solicited. Communications should be addressed to the University of Kansas Science Bulletin.

**UNIVERSITY OF KANSAS STUDIES, HUMANISTIC SERIES**, is a new publication, which has been instituted by the Board of Regents for the presentation of the results of research along humanistic lines. The numbers will be issued at irregular intervals, but it is intended to issue three each year. Each number will be a complete monograph, and the price will vary with its size and cost of publication. Arrangements for exchange may be made by addressing the editor.

**THE BULLETIN OF THE ENGINEERING EXPERIMENT STATION.** Reports are issued from time to time as the results of investiga-

tions become available for publication. Bulletins are issued in a regular series, numbered consecutively, the first number appearing in the winter of 1909-'10.

THE UNIVERSITY GEOLOGICAL SURVEY REPORTS are issued from time to time as material for them is gathered.

THE UNIVERSITY ENTOMOLOGICAL BULLETINS are reports issued in regular series from time to time, comprising the results of entomological investigations conducted by the University. These deal in part with applied problems of practical value referred to the University by various interests of the state, and in part with fundamental research problems presented by such investigations. These publications will be sent free to any citizen of the state upon application to the Chancellor of the University.

THE GRADUATE MAGAZINE is published monthly during the academic year by the Alumni Association of the University. Each volume contains the formal University addresses of the year and articles on subjects related to the University. Departments containing news-matter of interest to alumni and former students are included in each number.

THE UNIVERSITY DAILY KANSAN is a newspaper published five times a week by the Kansas University Publishing Association, an organization of students of the University.

THE JAYHAWKER is the annual published each year by the Senior classes of the schools of the University.

THE KANSAS LAWYER is published monthly by the students of the School of Law, and is devoted to the interests of that school and the Kansas bar.

### UNIVERSITY PRIZES.

THE WILLIAM J. BRYAN PRIZE FUND. Hon. William J. Bryan, of Lincoln, Neb., in 1898 presented the University \$250, to be used as follows: The sum is to be invested, and the yearly interest on the same is to be given that student presenting the best thesis on some one principle of our government. The details of the contest are entrusted to the Faculty of the University.

### CONCERTS OFFERED TO KANSAS COMMUNITIES.

The School of Fine Arts is prepared to furnish soloists to take part in concerts, music festivals, or public celebrations, or to give entire recital programs by members of the music and dramatic Faculty and the University musical organizations. The following artists may be secured: Dean Charles S. Skilton, organ and lecture recitals; Prof. Carl A. Preyer, piano; Prof. C. Edward Hubach, tenor; Mrs. Blanche Lyons, soprano; Prof. Wort S. Morse, violin; Miss Gertrude Mossler, dramatic reader; also the University Orchestra of twenty-five pieces, the University Glee Club, and the University Band. Address the Dean of the School of Fine Arts.



## RECOMMENDATION OF TEACHERS.

The University endeavors to assist those of its graduates who desire to teach in securing positions, and at the same time to be of service to high schools, academies and colleges which may be in need of competent instructors. To this end a committee of the Faculty preserves a complete list and record of graduates who are engaged in teaching or have fitted themselves especially for such work. The University authorities are thus prepared at any time to recommend persons who are well qualified for any position as teacher. In so doing, great care is exercised, the special qualifications of various teachers for the particular position in hand being in every case fully considered.

## UNIVERSITY PHYSICIAN.

A University physician has been appointed to look after sick students away from home; to consult with students in all matters relating to health, and to prevent, when possible, trivial ailments from becoming serious; to provide necessary temporary medical services gratuitously to students of the University; and to work with the University health committee in seeking out and eliminating special sources of infection, and in preventing the spread of infectious and contagious diseases among the students of the University. A hospital is maintained on the campus. Dr. H. L. Chambers, of the School of Medicine, has been appointed by the Board of Regents University physician.

SPECIAL ACTIVITIES UNDER COMMISSION FROM  
THE STATE.

## ANALYSIS OF FOOD AND DRUGS.

The legislature in 1905 passed a bill making it the duty of the chemistry departments of the University and the State Agricultural College, under the direction of the State Board of Health, to make analyses of samples of foods and beverages collected by any county or city board of health of the state of Kansas, and to make reports upon the same.

In conformity with this law, for the last four years the chemistry department of the University has examined a large number of food products, and the reports of these analyses have been published in the monthly *Bulletin* of the State Board of Health. The Kansas food and drugs act of February 14, 1907, requires analyses of drugs to be made by the pharmacy department at the University of Kansas, and of food products to be made by the chemistry departments at the University and the Agricultural College. A special laboratory has been fitted up for the analysis of drugs and another for the analysis of foods. These laboratories are completely furnished with the necessary materials, and a sufficient number of assistants is employed to carry on the work expeditiously.

## WATER SURVEY.

During the session of the legislature held in 1907 a bill was passed providing for a survey of the waters of Kansas, to be carried on under the joint auspices of the State Board of Health and the United States Geological Survey. This work contemplated the complete determination of the mineral matter in all the large streams of the state and a study of the industrial waste and the sewage in the streams. The first part of this work is completed and the results will be published by the department at Washington.

## SANITARY CONTROL OF WATER SUPPLIES AND SEWERAGE SYSTEMS.

The legislatures of 1907 and 1909 passed laws giving to the State Board of Health a large degree of control over all public water supplies and sewerage systems of the state, and charging this board with the preservation of the purity of the waters of the state, for the protection of the public health. The University is extensively coöperating with the State Board of Health in carrying these laws into effect. The secretary of the board and two members of the Faculty of the School of Engineering constitute the department of water and sewage of the board, which has this work directly in charge, while all the chemical and bacteriological analyses and tests necessary in the prosecution of the work are made at the University laboratories.

## ENTOMOLOGICAL COMMISSION.

In 1907 the legislature created the State Entomological Commission. The field work of this commission is conducted by the departments of entomology at the University and the Agricultural College. The University has performed the work of inspecting nurseries and issuing certificates to them since the beginning of such requirements, in 1896. It has also conducted investigations in the interests of agriculture and horticulture. Under this commission the department of entomology at the University publishes from time to time the results of its work.

## BACTERIOLOGICAL EXAMINATION OF WATER.

In connection with the United States Government Hydrographical Survey, the department of bacteriology has undertaken a series of tests of water from wells and various other sources. The aim of the work is largely the determination of the extent and source of water pollution through sewage and surface drainage.

## FISH AND GAME WARDENSHIP.

It having developed on the death of the former fish and game warden that no appropriation had been made to carry on this important work, the Board of Regents offered to the governor of the state the services of Prof. L. L. Dyche until the legislature could take such action in the premises as might seem wise. This work is so important that Professor Dyche has been relieved from so much of his regular duties at the University as may be

necessary to put the work of the fish and game wardenship upon a scientific and economic basis, the University believing that in such action it is doing a work of economic value to Kansas.

## CERAMICS.

In developing the natural resources of the state, few fields are richer for investigation than its clays. The University has entered upon this work. Coöperating with the Geological Survey, the department of mining engineering will analyze and test all native clays. The department of fine arts will make use of those found suitable for the production of artistic ware. The department is equipped with kilns, throw wheels and all appliances necessary to carry on the work. A thorough course in design is given to those taking the artistic treatment of clays.

## EXPENSES OF STUDENTS.

## FEES.

By legislative enactment, students are required to pay fees as scheduled below. In all cases, the matriculation fee is paid but once—at the time the student first registers in any school of the University. The incidental fee is payable in full each year at registration, but students in the schools of Law, Pharmacy, and Medicine are permitted to pay one-half of the incidental fee at the beginning of each semester.

*College of Liberal Arts and Sciences.*

Matriculation fee, for residents of the state .....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state .....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

*School of Engineering.*

Matriculation fee, for residents of the state .....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state .....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

*School of Law.*

Matriculation fee, for residents of the state .....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state .....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation.....	5 00

*School of Pharmacy.*

Matriculation fee, for residents of the state .....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state .....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation.....	5 00

Students taking the regular four-year course in pharmacy are registered during the first two years in both the School of Pharmacy and the College of Liberal Arts and Sciences, and may pay the College incidental fee so long as their work is confined to courses offered in the College.

*School of Medicine.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation.....	5 00

(For special fees for clinical work, see under Clinical Department.)

Since September, 1909, two years of approved College work are required for admission to the School of Medicine. During the first year of the regular four-year course in medicine students are registered in both the School of Medicine and the College of Liberal Arts and Sciences, and will pay the College incidental fee for the first year; so during the second year they will pay the incidental fee of the School of Medicine.

*School of Fine Arts.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Diploma fee, at graduation.....	5 00

(Special fees for fine arts students are given in detail in another part of this catalogue under School of Fine Arts, and in a special catalogue of the school.)

*Graduate School.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, for each degree.....	5 00

*Summer Session.*

Incidental fee, for residents of the state.....	\$10 00
for nonresidents .....	15 00

*School of Education.*

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

*Correspondence Department.*

Incidental fee, for residents of the state, any school....	\$10 00
for nonresidents of the state, any school..	15 00



## LABORATORY AND SHOP FEES.

Students are required to pay the actual cost of material of all kinds used in laboratories and shops. All the laboratories and shops of the University, and their equipment of desks, tables, balances, microscopes, instruments, models and other apparatus, engines, machinery and power for their operation are at the disposal of students, under the direction of their instructors. These desks, tables and benches will be further provided with individual sets of tools, working apparatus and equipment. At the end of the course, or earlier, at the discretion of the instructor, all the individual equipment in good order must be returned. Such as may have been lost, damaged, broken or destroyed by the student must be paid for by him at that time.

Materials and apparatus of every kind consumed, wasted, lost or broken in the manifold experiments and practice work in laboratories and shops must be paid for by the student.

In some departments a definite fee to cover cost of materials in a given course is fixed prior to the opening of each term. Such fees are payable at the Secretary's office at the time of enrollment and before beginning work in such course. A student, who for any reason is obliged to drop work in any laboratory course before completion, may receive a rebate of such portion of the fee, as shall be determined by the head of the department concerned, to be due him.

Other departments maintain storerooms, from which the student secures, at cost, material and apparatus as needed, giving coupons in payment. These coupons are sold at the Secretary's office in books of one, two and five dollars, and are accepted in all laboratories and shops maintaining such storerooms. Any coupons unused are redeemed, in cash at the Secretary's office when the student has completed the course and checked in his individual equipment. Coupons issued during any school year, however, will not be good beyond the close of that school year.

## OTHER EXPENSES.

Information concerning the location of rooming and boarding places may be had at the office of the Registrar.

The average price of board, rooms, light and fuel may be placed at from \$4 to \$7 a week. Day board in private families and at city restaurants may be obtained for \$3.50 to \$5 a week. Day board in clubs varies from \$3.50 to \$4 a week. Furnished rooms, usually occupied by two students, range from \$4 to \$15 a month. Unfurnished rooms rent for \$1.50 to \$3 a month. Students who can supply their own furniture and buy and prepare provisions for the table themselves can lessen expenses materially.

The following table shows the estimated expenses of a student of the University for a year, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the student:

Board .....	\$120 00 to \$160 00
Room .....	20 00 to 40 00
Books and stationery.....	8 00 to 40 00
Laundry .....	8 00 to 30 00
Matriculation and other fees..	15 00 to 30 00
Incidentals .....	15 00 to 50 00
Totals .....	\$186 00 to \$350 00

The estimated expenses for students in the Medical, Law and Pharmacy schools of the University are included in the second table because of the higher incidental fee.

#### APPROVED ROOMING PLACES.

By order of the Board of Regents of the University, the Registrar keeps lists of approved rooming places, made up of houses receiving men only or women only. *These lists may be had from the Registrar, on application.*

#### APPROVED ROOMING HOUSES FOR WOMEN.

The University of Kansas has as yet no dormitories for its students. It hopes before many years it will be equipped with at least a dormitory for women. In the meantime it attempts to secure the best conditions available for its women students through a University committee, under whose direction a list of rooming houses, for women only, is prepared each year. The sanitary and social conditions of each house are investigated before it is placed on the approved list. This list, together with regulations governing rooming places, may be had from the Registrar after July 1, and is called to the careful attention of parents and students.

It is recommended that all women entering the University consult the Rooming-house Committee before making final choice of rooms. The committee has an office on the first floor of Fraser Hall during registration week.

#### SELF-HELP.

Many students find work in private families, in offices, and in various occupations, by means of which they defray a portion of their expenses. Some students have earned their entire expenses while in attendance, and have made good records at the same time; other students have done so much work that they have not been able to keep up their studies, and have thus missed the one thing for which they came. If it is possible for the student to have a part of his expenses paid, he should not attempt to earn his way entirely by his own exertions. The University can not guarantee work to any student, but will lend every possible assistance in finding employment; and to this end it maintains an employment bureau, where the names of those seeking work and of those desiring workers are recorded. Students desiring places where they may help themselves are advised to apply to the Registrar of the University, to the secretary of the Employment Bureau, or to the University Y. M. C. A. or Y. W. C. A.

**PART III.**  
**Departments of Instruction.**

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# I. *The Graduate School.*

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The legislative Faculty of the Graduate School consists of professors and associate professors of the departments in which graduate courses are offered. The Faculty of instruction includes, in addition to these, assistant professors who are conducting graduate courses.

## FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM HERBERT CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.

FRANK WILSON BLACKMAR, PH. D., Dean, and Professor of Sociology and Economics.

JAMES WOODS GREEN, A. M., Professor of Law.

FRANK OLIN MARVIN, A. M., Professor of Engineering.

EDGAR HENRY SUMMERFIELD BAILEY,\* PH. D., Professor of Chemistry and Metallurgy.

ALEXANDER MARTIN WILCOX, PH. D., Professor of Greek Language and Literature.

LUCIUS ELMER SAYRE, PH. M., Professor of Pharmacy.

LEWIS LINDSAY DYCHE,\* M. S., Professor of Zoölogy.

CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.

OLIN TEMPLIN, A. M., Professor of Philosophy.

EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.

FRANK HEYWOOD HODDER, PH. M., Professor of American History and Political Science.

ERASMUS HAWORTH, PH. D., Professor of Geology, Mineralogy, and Mining.

ARTHUR TAPPAN WALKER, PH. D., Professor of Latin Language and Literature.

WILLIAM CHASE STEVENS, M. S., Professor of Botany.

ARVIN SOLOMON OLIN, A. M., Professor of Education.

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\* Absent on leave.

- EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
- WILLIAM LIVESEY BURDICK, LL. B., PH. D., Professor of Law.
- JOHN ELOF BOODIN, PH. D., Professor of Philosophy.
- IDA HENRIETTA HYDE, PH. D., Professor of Physiology.
- WILLIAM HAMILTON JOHNSON, A. M., Professor of Education.
- MARSHALL ALBERT BARBER,\* A. M., Professor of Bacteriology and Pathology.
- SAMUEL JOHN HUNTER, A. M., Professor of Entomology.
- WILLIAM EDWARD HIGGINS, B. S., LL. B., Professor of Law.
- CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.
- PERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.
- MERVIN TUBMAN SUDLER, PH. D., M. D., Professor of Surgery.
- ROBERT KENNEDY DUNCAN, SC. D., Director of Industrial Research.
- CARL LOTUS BECKER, PH. D., Professor of European History.
- L. D. HAVENHILL, PH. M., Professor of Pharmacy.
- FREDERICK EDWARD KESTER, PH. D., Professor of Physics.
- GEORGE CARL SHAAD, M. S., Professor of Electrical Engineering.
- RICHARD REES PRICE, A. M., Director of University Extension.
- CHARLES HUGHES JOHNSTON, PH. D., Professor of Education.
- EDNA D. DAY, PH. D., Professor of Home Economics.
- HAMILTON P. CADY, PH. D., Professor of Chemistry.
- WILLIAM C. HOAD, B. S., Professor of Civil Engineering.
- B. J. DALTON,\* B. C. E., Professor of Railway Engineering and Surveying.
- EDWARD J. CURRAN, M. D., D. Ophth., Professor of Anatomy.
- THOMAS H. BOUGHTON, M. D., Professor of Bacteriology and Pathology.
- MILES WILSON STERLING, A. M., Associate Professor of Greek.
- RAPHAEL DORMAN O'LEARY, A. B., Associate Professor of Rhetoric.
- HANNAH OLIVER, A. M., Associate Professor of Latin.
- ELMER FRANKLIN ENGEL, A. M., Associate Professor of German.
- SELDEN LINCOLN WHITCOMB,\* A. M., Associate Professor of English Literature.

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\* Absent on leave.

MARTIN EVERETT RICE, M. S., Associate Professor of Physics and Electrical Engineering.

JOHN NICHOLAS VAN DER VRIES,\* PH. D., Associate Professor of Mathematics.

HERBERT ALLAN RICE, C. E., Associate Professor of Civil Engineering.

CLINTON MASON YOUNG, E. M., Associate Professor of Mining Engineering.

RAYMOND ALFRED SCHWEGLER,\* A. M., Associate Professor of Education.

FREDERICK HORATIO BILLINGS,\* PH. D., Associate Professor of Botany and Bacteriology.

DAVID LESLIE PATTERSON, B. S., Associate Professor of European History.

HENRY WILBUR HUMBLE, A. M., Associate Professor of Law.

LOUIS EUGENE SISSON, A. M., Associate Professor of Rhetoric.

CLARENCE ADDISON DYKSTRA, A. B., Associate Professor of History.

ARTHUR E. HERTZLER, PH. D., Associate Professor of Surgery.

WILLIAM KIRK TRIMBLE, M. D., Associate Professor of Clinical Pathology.

ARTHUR JEROME BOYNTON, A. M., Associate Professor of Economics.

CHARLES HAMILTON ASHTON, PH. D. Associate Professor of Mathematics.

FRANCIS WILLIAM BUSHONG, SC. D., Associate Professor of Chemistry.

ALBERTA L. CORBIN, PH. D., Associate Professor of German.

CHARLES I. CORP, M. S., Associate Professor of Mechanical Engineering.

FRANK B. DAINS, PH. D., Associate Professor of Chemistry.

AUGUSTUS W. TRETTIEN, PH. D., Associate Professor of Education.

WILSON A. WHITAKER, JR., A. M., Associate Professor of Metallurgy.

#### ADMINISTRATIVE COMMITTEE.

FRANK W. BLACKMAR, Chairman.

FRANK H. HODDER.

CHARLES G. DUNLAP.

F. E. KESTER.

C. E. MCCLUNG.

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\* Absent on leave.

## PURPOSES OF THE SCHOOL.

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The Graduate School provides all the instruction in advanced subjects offered in the University. It is under the direction of the Faculty and administrative committee of the Graduate School, the Dean of the Graduate School being chairman of the administrative committee.

It was organized in 1896, mainly out of the College of Liberal Arts and Sciences and the School of Engineering, and most of the work offered by the Graduate School is in connection with the several departments of these schools. Courses are also given in pharmacy, law, medical science and education.

It is the business of the Faculty of the Graduate School to formulate courses in graduate work; to establish and maintain the requirements for all higher degrees offered by this University; to make recommendations for those degrees to the Board of Regents; and to fix such regulations as they may deem expedient for the government of the School.

## REQUIREMENTS FOR ADMISSION.

Admission to the Graduate School ordinarily is granted to graduates of this University holding the bachelor's degree, and to graduates of other colleges and universities of good standing on presentation of proper evidence of scholarship and testimonials of good character.

## REGISTRATION.

Students wishing to register should first apply to the Dean of the Graduate School. When it is ascertained in what department the student desires to do his major work, the Dean will refer him to the head of that department, who will select the courses, after consultation with the student. The student will then submit the courses to the Dean, and if approved, the applicant will be given a card permitting him to register in the office of the Registrar. Work to be counted as graduate work is specified in the catalogue, and must be designated as graduate on the enrollment card filed in the Registrar's office.

## DEGREES GRANTED.

The University offers eight advanced degrees, viz.:

MASTER OF ARTS.

MASTER OF SCIENCE.

DOCTOR OF PHILOSOPHY.

CIVIL ENGINEER.

MECHANICAL ENGINEER.

MINING ENGINEER.

CHEMICAL ENGINEER.

ELECTRICAL ENGINEER.



# THE REQUIREMENTS FOR THE DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE.

When the candidate for the master's degree has selected the department in which his major work is to be done the head of that department, in consultation with the candidate, approves his work for the master's degree, which may be confined to the department of the major study or may be selected from that and not more than two other departments. The decision of the head of the department is subject to the veto of the Dean of the Graduate School, but appeal may be made from the decision of the Dean to the Graduate Faculty. The head of the major department approves the courses selected for each semester on a card provided for the same, which is kept on file at the Dean's office. If the student subsequently changes his selection of a major department, the graduate work already done can not be counted toward the master's degree unless approved by the head of the new major department.

The master's degree will be granted only after at least one full year's graduate work. The candidate must have completed with high credit thirty hours of work chosen from the courses open to graduates, published in the catalogue, or approved by the departments concerned and the administrative committee. Courses for which a professional degree is given will not be counted toward this degree. Not more than sixteen hours' credit can be given in one term.

Ordinarily each candidate for the master's degree is required to present a thesis to the head of the major department. The thesis must embody the results of scholarly research on some topic connected with the candidate's major study. The thesis must be completed and given to the head of the department under whose direction it has been done, not later than May 15 preceding the June in which the candidate expects to receive his degree. After examining the thesis, the head of the department shall report its acceptance to the Registrar and deposit the thesis in the office of the Dean of the Graduate School. The thesis must be typewritten and bound in cloth. In special cases, where it seems advisable for the candidate to devote all of his time to regular class work, not involving research, on the recommendation of the head of the department and the consent of the Dean, the requirement of a thesis may be waived.

Ordinarily the candidate for the master's degree is expected to spend a minimum of one year in resident graduate work at some university, the latter half of which at least must be done in residence at the University of Kansas. These regulations permit the acceptance of graduate work done in other institutions to the extent of not more than half of the work, but all credits offered are subject to the decision of the administrative committee. In cases where students have fulfilled the time requirement and have completed all their work within five hours of the amount required they may be permitted to do five hours' work *in absentia* after obtaining the consent of the Dean and the head of the de-

partment in which the work is to be done. The term *in absentia* applies to work not done in colleges and universities. (See exception to the residence rule in regard to Summer Session and Extension.)

### SUMMER SESSION AND EXTENSION WORK.

With the consent of the department concerned, a student who has been fully admitted to the Graduate School may be allowed to do as much work *in absentia* as may be necessary to enable him to secure the master's degree by doing five or six hours in each of three summer sessions. This privilege will be granted only after the student's work in residence has satisfied the head of the department concerned that the student is able to do the work *in absentia*, and only to such students as have proper facilities (library or laboratory) for doing it. About half of the *in absentia* work must be done between the first and second summer sessions of residence, and most of the remainder between the second and third. Not more than five hours may be done after the third summer session. The regular requirements as to choice of studies and thesis will be enforced in all cases.

With the consent of the department concerned, students who are candidates for the master's degree may count *in absentia* work done in Extension courses given by members of the University Faculty to the extent of twelve hours, allowing two hours for each course of ten lectures.

### ENGINEERING DEGREES.

Graduates in engineering in this University, and masters of science who have received their degrees through the Graduate Faculty, are eligible to the professional degrees of civil engineer, electrical engineer, mechanical engineer, mining engineer, or chemical engineer, whichever is appropriate to the undergraduate course taken. Candidates for these degrees must have spent at least three years' actual time in professional practice, in positions of responsibility, in the design, construction or operation of engineering works, and must furnish detailed and satisfactory evidence as to the nature and extent of this practice.

They must submit an engineering thesis, accompanied by detailed explanations, drawings, specifications, estimates, etc., and embodying the results of their own work or observation. If approved, the thesis and all accompanying material become the property of the University.

All theses for any professional degree must be delivered to the Dean of the School of Engineering on or before the 15th day of May.

### DOCTOR OF PHILOSOPHY.

The degree of doctor of philosophy will be granted on the ground of advanced scholarship, and the performance of independent work in some special line, under the following conditions:

1. The candidate must be a baccalaureate graduate of this

University or of some other college or university of good standing; and he must give satisfactory evidence to the Faculty of the Graduate School that he possesses an adequate preparation for graduate work.

2. He must make application to the Dean of the Graduate School before the 1st day of October preceding the commencement at which he intends to present himself for the degree, and must then give satisfactory evidence of his ability to read such German and French as may be necessary for the proper prosecution of his studies.

3. He must have spent at least three full college years in resident graduate work at this or some other approved university; the last year must be spent as a resident student of this University. The time spent in attaining the degree of A. M. may be counted toward satisfying this time condition.

4. He must present a thesis showing the result of original research of a high character, and must pass acceptable examinations, both written and oral, in one chief or major study and two allied, subsidiary or minor studies, not more than two of which may be in the same department. The oral examination is given before the Faculty of the Graduate School, where the candidate may be required to defend his thesis. This thesis, embodying the results of original research in some subject connected with his major study, must be presented to the head of the department in which the work was done, not later than the 1st of May preceding the commencement at which the degree is to be conferred, and if approved by him it is placed on file for inspection in the office of the Dean of the Graduate School for at least two weeks. If the thesis is finally approved, the candidate must, before receiving the degree, deliver at least 100 printed copies of it to the Librarian of the University, or give proper security for the printing of that number; but if the thesis has already been printed, ten copies only need be deposited with the Librarian.

### GRADUATE TEACHING FELLOWSHIPS.

For the encouragement of advanced study and research, the University of Kansas has established seventeen teaching fellowships for graduates of special merit. Each fellowship entitles the holder to \$280. Teaching fellows may be required to give assistance, in the department to which they are assigned, not to exceed three hours of class or six hours of laboratory work per week, and are expected to devote the remainder of their time to investigation and research leading to an advanced degree. These fellowships are awarded to graduates of the University of Kansas, and of other colleges and universities of good standing, who have distinguished themselves for special scholarship and marked ability.

The Board of Regents determines each year the departments in which the fellowships are granted. For the year 1912-'13 fellowships will be awarded in the following subjects, one fellowship in each subject: German, mathematics, education, sociology,



economics, Romance languages, English language and literature, chemistry, American history, European history, zoölogy, Latin, botany, philosophy, physiology, anatomy, and Greek.

Applications for fellowship must be filed on blanks provided for the same with the Chancellor of the University on or before first day of April of the collegiate year preceding that during which the fellowship is desired. Such applications may be accompanied by recommendations of instructors and by specimens of original work of the applicants, either published or in manuscript.

The applications of the various candidates who are competing for the fellowships are referred to the administrative committee of the Graduate School, which acts as a fellowship committee in consultation with the heads of the departments in which fellowships are granted. The committee, after a consideration of the relative merits of all applicants, nominates the successful candidates and recommends them to the Board of Regents for election. Fellows are elected for a term of one year. However, in special cases, they may be reëlected for one additional year only.

#### TEACHING FELLOWS, 1911-'12.

- Anatomy.—Theodore H. Aschman.
- Botany.—Myrtle Greenfield.
- Chemistry.—James Robinson.
- Education.—Geo. W. Kleihege.
- Economics.—Francis D. Schnacke.
- English language and literature.—Jesse R. Derby.
- Greek.—Florence M. Beatty.
- German language and literature.—Not filled.
- History, American.—Temporarily transferred to zoölogy.
- History, European.—Floyd B. Streeter.
- Latin Language and literature.—Orpha G. Light,\* first semester; Irene Gilchrist, second semester.
- Mathematics.—Edward Fisher.
- Philosophy.—Carl R. Brown.
- Physiology.—Chas. M. Gruber.
- Romance languages.—Martin K. Brooks.
- Sociology.—Charles R. Nesbitt.
- Zoölogy.—David R. Wenrich; Eleanor Carothers.†

#### UNIVERSITY FELLOWSHIPS FOR GRADUATES OF KANSAS COLLEGES.

In order to promote advanced study at the University of Kansas, and to encourage the graduates of Kansas colleges and universities to continue their work, the University of Kansas offers one fellowship of \$280, to each of eleven Kansas colleges for the academic year of 1912-'13 and each year thereafter. The colleges to which fellowships are offered for 1912-'13 are: Baker University, Bethany College, Emporia College, Fairmount Col-

\* Resigned.

† By courtesy of History Department.



lege, Friends University, Midland College, McPherson College, Ottawa University, Southwest Kansas College, Washburn College, and Campbell College. This list is subject to change each year by the administrative committee of the Graduate School after consultation with the committee of visitation of colleges.

Candidates for fellowships are to be nominated by the faculties of the respective colleges, from the classes graduating in June before the September when they are to enter upon their fellowships. However, in case there are no satisfactory candidates in the classes referred to, candidates may be nominated from the graduating classes. It is understood that the candidate shall be from among those attaining high scholarship in the respective classes. On or before the first of April of the year in which the fellowship is awarded, the president of the college receiving the fellowship shall send the name of the candidate nominated by the college faculty or its committee, with a statement of his qualifications, to the Dean of the Graduate School of the University of Kansas.

The candidate's application will be considered by the administrative committee of the Graduate School as in case of other fellowships, and if satisfactory he will be recommended to the Board of Regents for election. A fellow so elected may choose his work, in accordance with the rules of the Graduate School, in any of the departments offering work in the Graduate School.

Each fellow may be called upon to teach or render other equivalent services for not more than two hours per week in the department in which he chooses his major work.

#### UNIVERSITY FELLOWSHIPS FOR GRADUATES OF KANSAS COLLEGES FOR 1911-'12.

Baker University.—A. D. Power.  
Bethany College.—W. E. Tilberg.  
Campbell College.—Donna Clare Rose.  
Emporia College.—Samuel H. Haag.  
Fairmount College.—Robert T. McCluggage.  
Friends University.—Sophia G. Harms.  
McPherson College.—Bertha E. Colline.  
Midland College.—Alfred L. Nelson, first semester.  
Midland College.—Alfred P. Krueger, second semester.  
Ottawa University.—Wm. Gustaf Nelson.  
Southwestern College.—John B. Wesley.  
Washburn College.—John T. Myers.

#### FELLOWSHIPS IN INDUSTRIAL RESEARCH.

The University believes that the best training for an industrial chemist is pure chemistry. For this reason it is concerned chiefly with advanced practical research on the part of highly trained men. It will accept from corporations or individuals of business standing and integrity fellowships for the solution of industrial problems of public importance. Professor Duncan, who has the responsibility and direction of these industrial researches, will be glad to furnish to manufacturers involved in manufacturing difficulties details of the course to be

followed in placing their problems in the hands of the University for solution. The fellowships in force in 1911-'12 are as follows:

7. The Holophane Fellowship in "The Relation Between the Optical Properties of Glass and its Chemical Constitution." Fifteen hundred dollars a year for two years. E. Ward Tillotson, Ph. D.

8. The Ash Grove Fellowship in "Improvements in the Manufacture of Portland Cement and Lime." Fifteen hundred dollars a year for two years. J. F. McKey, Ph. D.

9. The Stubbs-Grenfell Fellowship in "An Investigation into the Extractive Principles of the Glands of Deep-sea Mammals." Six hundred and sixty-six dollars a year for one year and a half. E. R. Weidlein, A. B.

10. The Julius Karpen Fellowship in "An Investigation into the Chemical Treatment of Wood." Fifteen hundred dollars a year for two years. Multiple fellowship: L. V. Redman, A. M., Senior fellow; A. J. Weith, B. S., F. P. Brock, B. S., Junior fellows.

12. The H. K. Elston Fellowship in "Improvements in the Dyeing of Vegetable Ivory and the Utilization of Vegetable Ivory Waste." J. P. Trickey, B. S.

13. "The Utilization of Petroleum in the Manufacture of Soap." Multiple fellowship: F. W. Bushong, Sc. D., senior fellow; I. W. Humphrey, A. B., junior fellow.

14. "The Utilization of Gilsonite." W. E. Vawter, B. S.

With nearly all these fellowships there goes a large additional consideration contingent upon success.

### GRADUATE CLUB.

Each year the students of the Graduate School organize a club for general social, literary and scientific work. It helps to make the students acquainted with each other as well as acquainted with the nature of each other's work.

### DEPARTMENTS.

The following departments offer graduate work in the University. In some of them the facilities are adequate for thorough preparation for the doctor's degree, and in all of them the facilities are excellent for work leading to the master's degree:

Anatomy.

Botany.

Bacteriology and Pathology.

Chemistry.

Education.

Economics.

English Language and Literature.

Engineering, Civil.

Engineering, Electrical.

Engineering, Mechanical.

Entomology.

Geology and Mineralogy.  
Germanic Languages and Literatures.  
Greek.  
History and Political Science.  
Home Economics.  
Industrial Research.  
Latin Language and Literature.  
Law.  
Mathematics.  
Medical Sciences.  
Mineralogy (see Geology).  
Pharmacy.  
Philosophy.  
Physics.  
Physiology.  
Romance Languages and Literatures.  
Sociology.  
Zoölogy.

## DESCRIPTION OF COURSES IN THE GRADUATE SCHOOL.

### ANATOMY.

Professor CURRAN.  
Doctor SMITH.

The following courses may be taken by advanced undergraduates also:

150.—DESCRIPTIVE ANATOMY. Seven hours, first semester, daily, 8 to 12:15. The first two weeks are occupied by a study of osteology. This is intended as an introduction to the study of anatomy. The vertebral column is considered from a morphological standpoint and the various bones studied by means of drawings and modeling. The balance of the term is devoted to dissection of the arm and leg and study of various preparations and models illustrating these parts. Demonstrations to small groups of students are continually going on in the dissecting room. Professor Curran and Doctor Smith.

151.—DESCRIPTIVE ANATOMY. Eight hours, second semester, daily, 8 to 12:15. During this term the abdomen, thorax and head are carefully dissected and studied, with demonstrations as in No. 150. This is a continuation of course 150. Professor Curran and Doctor Smith.

152.—NEUROLOGY AND SENSE ORGANS. Four hours, second half of second semester, daily, 8 to 12:15. This is a study of the gross anatomy of the cord and brain by means of dissections, models and slides. The latter are stained by the Weigert method, and are demonstrated by the microscope and lantern. The various nuclei of the cranial nerves and the most important tracts of the cord and brain are considered, both from anatomical and physiological points of view. Professor Curran.

### BACTERIOLOGY AND PATHOLOGY.

Professor BOUGHTON.  
Mr. CURL.

150.—MEDICAL BACTERIOLOGY. Five hours, first semester, 1:30 to 3:30. In this course the student learns the methods of preparing culture media and of studying bacteria, and acquires proficiency in bacteriological technique. The more common disease-producing bacteria are studied with reference to their morphologic and cultural characteristics. Professor Boughton and Mr. Curl.

151.—ADVANCED BACTERIOLOGY. Includes the more difficult technical procedures, and research work. By appointment. Professor Boughton.



152.—PATHOLOGY. Research work in all branches of pathology and immunology. By appointment. Professor Boughton.

## BOTANY.

Professor STEVENS.

Associate Professor BILLINGS.

Dr. CHARLES, Instructor.

Mr. SHERWOOD, Instructor.

100.—PROBLEMS IN BACTERIOLOGY. By appointment, three, five or ten hours, either semester. Advanced laboratory work with readings along special lines; or original investigation with the preparation of a thesis. Associate Professor Billings.

101.—MORPHOLOGY AND PHYSIOLOGY OF THE PLANT CELL. By appointment, five hours or ten hours, first or second semester, or both semesters. A study of cell forms, their adaptation to specific functions, and their behavior under varying environment; nuclear and cell division; reproduction. Professor Stevens.

102.—PLANT ECOLOGY. By appointment, three hours, five hours, or ten hours, throughout the year. The relation of plants to their environment. Field work and reading. Warming's, Schimper's, Clements' and Cowls' texts and current literature. Professor Stevens.

103.—PROBLEMS IN HISTOGENESIS. By appointment, three hours, five hours, or ten hours, first or second semester, or both semesters. A study of the development of the tissues in selected plants. Professor Stevens.

104.—BOTANICAL SEMINAR. One hour, by appointment. Review and discussion of current botanical work. Reports on assigned subjects. Open to graduates and advanced undergraduates.

The following courses are open to advanced undergraduates also:

151.—EXPERIMENTAL PLANT PHYSIOLOGY. Five hours, second semester, 10:15 to 12:15. Professor Stevens.

152.—TAXONOMY OF PHANEROGAMS. Five hours, first semester, 8 to 10. Miss Charles.

153.—MORPHOLOGY OF FUNGI. Three hours, first semester, 10:15 to 12:15. Miss Charles.

154.—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. By appointment, three hours, five hours, ten hours, first or second semester, or both semesters. Professor Stevens.

155.—GENERAL BACTERIOLOGY. Five hours, first semester, 10:15 to 12:15. Prerequisites, botany 2 or 3, or zoölogy 2. Associate Professor Billings and Mr. Sherwood.

156.—BACTERIOLOGY OF MILK. Three hours, second semester, 1:30 to 3:30. Prerequisite, general bacteriology. Associate Professor Billings and Mr. Sherwood.

157.—DOMESTICATED PLANTS. Two hours, first semester,

Tuesday and Thursday, 3:30 to 4:30, or by appointment. Professor Stevens.

158.—ADVANCED TAXONOMY. Three hours, both semesters, Monday, Wednesday, and Friday, 8 to 10, or by appointment. Prerequisite, course 5. Miss Charles.

159.—TEACHERS' COURSE IN BOTANY. Five hours, 8 to 10, second semester. Miss Charles.

160.—MORPHOLOGY OF THALOPHYTES. Three, five or ten hours, first semester, by appointment. Professor Stevens.

161.—MORPHOLOGY OF BRYOPHYTES AND PTERIDOPHYTES. Three or five hours, second semester, by appointment. Miss Charles.

162.—ORGANIC EVOLUTION. Three hours, first semester, at 9. This course will present the theory of evolution historically and in the light of recent important evidences derived from observation and experiment; lectures, collateral reading and recitation. Professor Stevens and Professor McClung.

## CHEMISTRY.

Professor BAILEY.

Professor CADY.

Associate Professor DAINS.

Associate Professor WHITAKER.

Assistant Professor ALLEN.

Assistant Professor JACKSON.

Assistant Professor YOUNG.

PREREQUISITES. Students who expect to take a graduate major in chemistry must present not less than the substantial equivalent of our undergraduate courses 1, 2, 3, 4 and 54 before beginning their graduate work.

100.—HISTORY OF CHEMISTRY. Three hours, second semester, by appointment. A course in history of chemistry and the development of chemical theories. Recitations, library work, and the presentation of reports. Not offered in 1911-'12 and alternate years thereafter. Associate Professor Dains.

101.—ANALYTICAL CHEMISTRY. Five hours, either semester, by appointment. A research course. This may include the investigation of some problems in metallurgical or manufacturing processes, the complete investigation of some proposed water supply, the development of new methods in analytical chemistry, or a study and comparison of methods already in use. Professor Bailey.

102.—ORGANIC CHEMISTRY. Five hours, either semester, by appointment. A research course. This course offers, to those who have proper preparation, a chance for more extended study and original investigation. Associate Professor Dains.

103.—PHYSICAL CHEMISTRY. Five hours, either semester, by appointment. A research course extending over two or more semesters. An opportunity is offered, to those who are sufficiently advanced, to carry on investigations in this branch of chemistry. Professor Cady.

104.—ORGANIC PREPARATIONS (advanced). Five hours, either semester, by appointment. Must be preceded by course 60 (College) or its equivalent. A study of organic synthetical methods and ultimate organic analyses. Associate Professor Dains.

105.—ELECTROCHEMISTRY. Five hours, second semester, by appointment. A laboratory course on the reactions involving oxidation and reduction, electrosyntheses and decompositions, the preparation of chemicals, the reduction of metals from their ores, and the purification of metallurgical products. Must be preceded by course 64 (College). Professor Cady.

106.—CHEMICAL STATICS AND DYNAMICS. Three hours, second semester, by appointment. A study of the manner in which chemical reactions take place, and the equilibria which result, from the standpoint of reaction velocities. Prerequisites, general physics, calculus, physical chemistry 164 or 165, and organic chemistry. Professor Cady.

107.—THE PHASE LAW. Two hours, second semester, by appointment. A study of chemical equilibria from the standpoint of the phase law of Gibbs. Prerequisite, course 165. Professor Cady.

108.—GAS ANALYSIS. Two hours, first semester, by appointment. A laboratory course. Gill's or Hempel's Gas Analysis. Prerequisite, course 54 (College). Assistant Professor Allen.

110.—ELECTROLYTIC ESTIMATION OF METALS. Two hours, second semester, by appointment. A laboratory course. Prerequisite, course 54 (College). Assistant Professor Allen.

111.—SUGAR ANALYSIS. Two hours, by appointment. Assistant Professor Jackson.

The following course may be taken by undergraduates also. For description, see "The College."

155.—QUANTITATIVE ANALYSIS. Two, three or five hours, either semester. Assistant Professor Allen.

156.—WATER ANALYSIS. Three hours, second semester, by appointment. Assistant Professor Young.

157.—ASSAYING AND METALLURGICAL ANALYSIS. Five hours, second semester, 3:30 to 5:30, and by appointment. Associate Professor Whitaker.

158.—FOOD ANALYSIS. Four hours, either semester, by appointment. Assistant Professor Jackson.

160.—ORGANIC CHEMISTRY II. Five hours, second semester, 3:30 to 5:30. Associate Professor Dains.

161.—METALLURGY I. Five hours, first semester, at 9. Associate Professor Whitaker.

162.—METALLURGY II. Three hours, second semester, at 9. Associate Professor Whitaker.

163.—METALLURGICAL LABORATORY. Two hours, either semester. Associate Professor Whitaker.

164.—PHYSICAL CHEMISTRY. Five hours, first semester, at 10:15. Professor Cady.

165.—PHYSICAL CHEMISTRY. Five hours, second semester, at 10:15. Professor Cady.

190.—TEACHERS' COURSE IN CHEMISTRY. Four hours, second semester, by appointment. Professor Bailey.

170.—METALLOGRAPHY. This course covers the general principles of metallography as applied to iron, steel and other alloys. It includes a study of the typical micro-structures, their interpretation as applied to annealing, tempering and hardening, and the general theories of heat treatment. Laboratory work and conferences. Two hours. Associate Professor Whitaker.

171.—ADVANCED ORGANIC CHEMISTRY. Special topics in advanced organic chemistry. Two hours, first semester; not given fall 1912-'13. Associate Professor Dains.

### ECONOMICS.

Associate Professor BOYNTON.  
Assistant Professor PUTNAM.

100.—SEMINAR OF ECONOMICS. Two to ten hours, each semester, by appointment. This is a research course for advanced students. Applicants for admission to the seminar must satisfy the instructors of their preparation and ability to undertake original investigation. Each student must pursue a definite line of work under the direction of one of the instructors.

103.—BUSINESS ORGANIZATION AND MANAGEMENT. Two hours, second semester, Tuesday and Thursday, at 9. Designed for advanced students in economics who desire to make special preparation for business life. The course treats of methods of general business organization and management, as well as the organization of the business of the bank, the factory, and the general office. The organization and working of the industrial and commercial corporation will be given special consideration. Attention will be given to special examples of industries as types to illustrate the forms of modern business organizations and methods. Associate Professor Boynton.

104.—SOCIAL AND ECONOMIC STATISTICS. Two hours, second semester, Tuesday and Thursday, at 10:15. A practical course in social problems by the statistical method. Students are instructed in the technique of statistics and the scope and meaning of statistical inquiry. A practical knowledge is derived from the handling of statistical data and in the construction of statistical tables, tabulations, etc. By the preparation of diagrams, charts, etc., in the laboratory, the graphic method is also introduced. Should be preceded by sociology 50 and economics 1. Associate Professor Boynton.

106.—ECONOMIC THEORY, TO ADAM SMITH. Two hours, either semester, by appointment. The growth of thought about economic matters in ancient, mediæval and modern times, down to about the end of the eighteenth century, is studied, chiefly from the works of the original writers. This study furnishes many points for suggestive contrast and comparison between earlier



and later theories and explains many features of modern economic theories. Associate Professor Boynton.

107.—ECONOMIC THEORY, SINCE ADAM SMITH. Two hours, either semester, by appointment. The extensive economic literature of the nineteenth century is the subject matter of this course. The important economists are all studied at first hand, and occasional attention is given to the works of minor writers, in cases where their writings contain important germs of theories later developed by others of greater prominence. Associate Professor Boynton.

108.—ECONOMIC RESOURCES AND ACTIVITIES OF EUROPEAN COUNTRIES. Two hours, second semester, Tuesday and Thursday, at 9. A study of the natural resources of industrial nations and their present economic life and activity. The present condition of agriculture, mining, manufacturing, and industry in general, together with the internal trade and foreign commerce of each country, will be investigated and the governmental policies designed to encourage industry and trade will also be a feature of the course. Associate Professor Boynton.

109.—ECONOMIC HISTORY OF EUROPE. Three hours, by appointment. A research and lecture course open to graduate students who have already had at least economics I, II, and III, or their equivalent. The scope of work will attempt to cover the threefold economic development of the continent as shown in the agricultural, industrial and commercial evolution of the principal nations. Special phases of the economic life of Europe within the above-mentioned fields may also be assigned for purposes of investigation to graduate students. Associate Professor Boynton.

The following courses may be taken by undergraduates also:

150.—MONEY AND CREDIT. Two hours, first semester, Tuesday and Thursday, at 10:15. Associate Professor Boynton.

151.—BANKING. Two hours, second semester, Tuesday and Thursday, at 10:15. Associate Professor Boynton.

152.—FINANCIAL HISTORY OF THE UNITED STATES. Three hours, second semester, Monday, Wednesday, and Friday, at 10:15.

153.—PUBLIC FINANCE. Three hours, first semester, Monday, Wednesday, and Friday, at 10:15. Associate Professor Boynton.

154.—CORPORATE FINANCE. Two hours, first semester, Tuesday and Thursday, at 9. Assistant Professor Putnam.

156.—ECONOMICS OF DISTRIBUTION. Two hours, first semester, Tuesday and Thursday, at 9. Assistant Professor Putnam. (Not given in 1912-'13.)

157.—HISTORY AND DEVELOPMENT OF TRANSPORTATION. Two hours, first semester, Tuesday and Thursday, at 11:15. Associate Professor Boynton. (Not given in 1912-'13.)

158.—RAILWAY RATES AND GOVERNMENT REGULATION. Three hours, second semester, Monday, Wednesday, and Friday, at 11:15. Associate Professor Boynton.

159.—HISTORY OF TRADE-UNIONISM AND LABOR ORGANIZATION. Three hours, first semester, Monday, Wednesday, and Friday, at 11:15. Associate Professor Boynton.

160.—LABOR PROBLEMS. Two hours, second semester, Tuesday and Thursday, at 9. Assistant Professor Putnam. (Not given in 1912-'13.)

161.—INSURANCE. Two hours, second semester, Tuesday and Thursday, at 9. Assistant Professor Putnam.

162.—ACCOUNTING. Two hours, second semester, Tuesday and Thursday. (Not given in 1912-'13.)

163.—ECONOMICS OF AGRICULTURE. Three hours, second semester. (Not given in 1912-'13.)

164.—INVESTMENTS. Two hours, second semester, at 11:15. Associate Professor Boynton.

### EDUCATION.

Professor JOHNSTON.

Professor OLIN.

Associate Professor SCHWEGLER.

Assistant Professor JOSSELYN.

Assistant Professor TRETNIEN.

100.—SEMINAR IN EDUCATIONAL PSYCHOLOGY. Three to five hours, both semesters. Professor Johnston. By appointment.

101.—ABNORMAL PSYCHOSES. Two or three hours, both semesters, hours by appointment. Associate Professor Schwegler.

102.—SEMINAR, HERBERT AND FROEBEL. Two hours, first semester. Professor Olin. By appointment.

103.—SEMINAR, DEVELOPMENT OF UNIVERSITIES. Two hours, second semester. Professor Olin. By appointment.

104.—SEMINAR, EDUCATIONAL STATISTICS. Two to four hours, both semesters. Assistant Professor Josselyn. By appointment.

The following courses are open to undergraduates and graduates. For description, see School of Education.

159.—EDUCATIONAL CLASSICS. Two hours, first semester, at 10:15. Professor Olin.

160.—EDUCATIONAL CLASSICS. Two hours, second semester, at 9. Professor Olin.

163.—EDUCATION IN AMERICA. Three hours, second semester, at 9. Professor Olin.

164.—EDUCATIONAL PSYCHOLOGY. Three hours, both semesters, at 9 and 2:30. Professor Johnston and Assistant Professor Josselyn.

165.—GENETIC PSYCHOLOGY. Two hours, first semester, at 11:15. Associate Professor Schwegler.

171.—EDUCATIONAL PATHOLOGY. Two hours, first semester, at 10:15. Associate Professor Schwegler.

167.—ADVANCED EDUCATIONAL PSYCHOLOGY. Two hours, second semester, at 10:15. Professor Johnston and Assistant Professor Josselyn.

168.—PHILOSOPHY OF EDUCATION. Three hours, first semester, at 3:30. Assistant Professor Trettien.

166.—EXPERIMENTAL EDUCATION. Two hours, second semester, at 9. Assistant Professor Josselyn.

156.—VOCATIONAL EDUCATION. Two hours, first semester, at 9. Assistant Professor Josselyn.

153.—SOCIAL EDUCATION. Two hours, second semester, at 8. Assistant Professor Josselyn.

172.—ELEMENTARY EDUCATION. Three hours, first semester, at 8. Assistant Professor Josselyn.

173.—SUPERVISION OF INSTRUCTION IN ELEMENTARY SCHOOLS. Two hours, first semester, at 8. Assistant Professor Josselyn.

174.—ADMINISTRATION OF PUBLIC EDUCATION. Three hours, second semester, at 8. Assistant Professor Josselyn.

161.—SECONDARY EDUCATION. Three hours, second semester, at 11:15. Professor Johnston.

158.—COMPARATIVE STUDY OF EDUCATIONAL SYSTEMS. Three hours, first semester, at 9. Professor Olin.

155.—MENTAL MEASUREMENTS. Two hours, second semester. Associate Professor Schwegler.

169.—TECHNIQUE OF TEACHING. Two hours, both semesters, at 3:30. Assistant Professor Trettien.

177.—PRACTICAL PROBLEMS. Credit to be arranged, both semesters, Saturday morning, at 10. Assistant Professor Trettien.

157.—SCHOOL HYGIENE. Three hours, second semester, at 3:30. Assistant Professor Trettien.

170.—THE EDUCATION OF FEELING AND ATTENTION. Second semester, hours to be arranged. Professor Johnston. (Omitted in 1912-'13.)

#### TEACHERS' COURSES IN SPECIAL SUBJECTS.

Graduate credit is not given to practice teaching.

185.—TEACHERS' COURSE IN GERMAN. Three hours, second semester. Professor Carruth and Associate Professor Corbin.

186.—TEACHERS' COURSE IN ENGLISH. Three hours, first semester, at 2:30. Professor Hopkins.

187.—TEACHERS' COURSE IN LATIN. Two hours, first semester, at 10:15. Professor Walker.

188.—TEACHERS' COURSE IN FRENCH. Three hours, second semester, at 11:15. Professor Galloo.

189.—TEACHERS' COURSE IN MATHEMATICS. Three hours, second semester, at 9. Assistant Professor Mitchell.

190.—TEACHERS' COURSE IN CHEMISTRY. Two hours, second semester. Professor Bailey and the instructor in charge of the elementary course.

191.—TEACHERS' COURSE IN HISTORY. Two hours, second semester, at 2:30. Professor Becker.

192.—TEACHERS' COURSE IN BOTANY. Three hours, second semester, at 8 or 10. Miss Charles.

193.—TEACHERS' COURSE IN ENTOMOLOGY. Three hours, second semester, 3:30 to 5:30. Professor Hunter.

180.—TEACHERS' COURSE IN PHYSICS. Three hours, second semester, at 4:30. Assistant Professor Stimpson.

181.—TEACHERS' COURSE IN PHYSIOLOGY. Three hours, second semester, at 2:30. Professor Hyde.

182.—TEACHERS' COURSE IN PHYSICAL GEOGRAPHY. Two hours, second semester, at 9. Professor Haworth.

183.—TEACHERS' COURSE IN HOME ECONOMICS. Three hours, second semester. Professor Day.

### ENGINEERING—CIVIL.

Dean MARVIN.

Professor HOAD.

Professor DALTON.

Associate Professor H. A. RICE.

Associate Professor CORP.

Assistant Professor GARDNER.

For equipment, see under School of Engineering.

100.—STRUCTURAL DESIGNING. Five credit hours, first or second semester, by appointment. An advanced course covering cantilever, swing and suspension bridges, skeleton frames for buildings, train-shed roofs, standpipes, and elevated tanks. This course is designed to follow course 15. Lectures, recitations, and detail designing in the drawing room. Associate Professor H. A. Rice.

101.—RESEARCH COURSE. A course of investigation of some matter directly related to civil engineering. This course should run through the year, making ten hours' credit. Arrangements for the course should be made with Dean Marvin.

162.—BRIDGE DESIGNING. Five hours, second semester, daily, 1:30 to 3:30. A study of bridge details and the dimensions of parts. Students work out designs for a plate girder and a simple truss. Must be preceded by course 14. Associate Professor H. A. Rice.

163.—ENGINEERING MATERIALS. Five hours, second semester, by appointment. A study of the methods of manufacture of structural materials and the different means and machines used in their testing. Opportunity will be given for specialization along some particular line, if desired, and considerable experimental work may be done in the laboratory. Recitations, lectures, library and laboratory work. Associate Professor Corp.

164.—SANITARY ENGINEERING. Five hours, second semester, by appointment. An advanced course. Prerequisites, courses in water supply and sewerage. A general study of public sanitation, particularly with reference to the water-borne infectious diseases. A study of engineering works for the protection of the public health. Influence of good sewerage, drainage and water supply upon the health of communities. Visits to sanitary



engineering works. State control of public water supplies, and of the pollution of streams. Lectures, recitations and reading. Professor Hoad.

165.—REINFORCED CONCRETE. Two and one-half hours, second semester, daily, (b), at 9. Assistant Professor Gardner.

166.—MAINTENANCE OF WAY. Five hours, second semester, daily, at 10:15. An advanced course in railway engineering. Professor Dalton.

### ENGINEERING—ELECTRICAL.

Professor SHAAD.

Assistant Professor JOHNSON.

100.—POWER TRANSMISSION AND ELECTRIC RAILWAYS. An advanced course in these subjects, consisting of lectures, assigned readings, and problems, special attention being paid to the engineering features of long-distance power transmission and the electrification of trunk line railways. Second semester, four hours, by appointment. Professor Shaad.

The following courses may be taken by advanced undergraduates also. (See "School of Engineering.")

156.—ELECTRIC LIGHTING. Second semester, (a), five hours, at 11:15. Assistant Professor Johnson.

157.—ELECTRIC POWER TRANSMISSION. Second semester, (a), five hours, at 9. Professor Shaad.

159.—ELECTRIC RAILWAYS. Second semester, (b), five hours, at 9. Professor Shaad.

161.—ELECTRICAL ENGINEERING PRACTICE. Second semester, three hours, Monday, Wednesday, and Friday, at 10:15. Professor Shaad.

### ENGINEERING—MECHANICAL.

Professor WALKER.

Associate Professor CORP.

100.—ADVANCED ENGINEERING LABORATORY. Research work in some line connected with power development, fuel, lubrication or refrigeration, as may be selected in consultation with the instructor. Both semesters, five hours, as assigned. Professor Walker.

101.—ADVANCED DESIGNING. The course calls for a complete design in all details of some machine or of a plant for manufacturing or power development purposes. Water-power, steam and gas machinery, and systems of power transmission are given particular attention. Five hours, both semesters, as assigned. Professor Walker.

102.—RESEARCH COURSE. Five hours, each semester, by appointment. A full presentation of some engineering subject to be selected in consultation with the instructor in charge. It may be a subject which is being treated in course 100 or 101. Professor Walker.

The following undergraduate courses, described in the Engineering School catalogue, may be taken for credit by graduates, when accompanied by additional reading and reports:

156.—HYDRAULIC MACHINERY, in conjunction with mechanics 4. First semester, (b), four hours, at 10:15. Associate Professor Corp.

157.—THERMODYNAMICS. First semester, four hours, at 11:15.

### ENGLISH LANGUAGE AND LITERATURE.

Professor DUNLAP.  
 Professor HOPKINS.  
 Associate Professor O'LEARY.  
 Associate Professor WHITCOMB.  
 Associate Professor SISSON.  
 Assistant Professor RAYMOND.  
 Assistant Professor LYNN.  
 Assistant Professor GRAY.  
 Assistant Professor JOHNSON.  
 Assistant Professor CROISSANT.

100.—CHAUCER. Two hours, second semester, Tuesday and Thursday, at 10:15. Lectures upon Middle English grammar. Reading of the minor poems of Chaucer. Professor Dunlap.

102.—THE ELIZABETHAN DRAMA, exclusive of Shakspeare. Three hours, second semester, Monday, Wednesday, and Friday, at 10:15. Special attention to Marlowe, Ben Jonson, and Beaumont and Fletcher. Lectures on the dramatic history of the period, and reading of about twenty plays. Assistant Professor Gray.

103.—ENGLISH LITERATURE AS INFLUENCED BY OTHER LITERATURES. Three hours, second semester, by appointment. An introductory review of the subject, followed by detail study of a selected topic. Associate Professor Whitcomb.

104.—ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY, the age of Milton and Jeremy Taylor. Two hours, first semester, Tuesday and Thursday, at 11:15. Study of the growth of thought and the development of various types of English literature. Two theses. Assistant Professor Raymond.

105.—ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours, second semester, Tuesday and Thursday, at 9. Continuation of course 104. Assistant Professor Raymond.

106.—ENGLISH PROSE OF THE EIGHTEENTH CENTURY. Three hours, first semester, Monday, Wednesday, and Friday, at 9. The authors studied will be Swift, Addison, Steele, Johnson, Goldsmith, and Burke. Lectures, library work, and the preparation of a thesis. Associate Professor O'Leary.

107.—HISTORY OF ENGLISH CRITICISM. Two hours, second semester, by appointment. A brief general review of the development of English criticism will be followed by detailed study of a comparatively limited period. In 1912-'13 chief attention will be given to the critics from about 1760 to 1800, in connection with the Romantic Movement. Associate Professor Whitcomb.

108.—LATER NINETEENTH CENTURY VERSE. Two hours, second semester, by appointment. Special study of the poetry of Arnold, Fitzgerald, Clough, Swinburne, the Rossettis and William Morris. A brief survey of the minor poets of the period and of contemporary verse. Assistant Professor Johnson.

109.—HISTORY OF THE LITERATURE AND THE TEACHING OF RHETORIC IN ENGLISH. Two hours, first semester, Tuesday and Thursday, at 10:15. Lectures, library reading, and the preparation of a thesis. Associate Professor O'Leary.

110.—ENGLISH PROSODY. One hour, second semester, by appointment. The history of English verse and verse forms. Professor Hopkins.

111.—EPIC POETRY. Three hours, first semester, by appointment. An analysis of the epic poem as a form of literature, with detailed study of three or four masterpieces in English original or translation. (Not given in 1912-'13.) Associate Professor Whitcomb.

112.—SEMINAR. Three to five hours, first semester, by appointment. Original investigation of approved subjects, under immediate supervision of some instructor in the department. Methodology of English is the subject for first term.

113.—SEMINAR. Three to five hours, second semester, by appointment. A continuation of course 112.

The following courses are open to advanced undergraduates also. For description, see "The College."

153.—ARGUMENT. Three hours. Professor Hopkins.

155.—LITERARY CRITICISM. Two hours. Professor Hopkins.

156.—VERSIFICATION. One hour. Professor Hopkins.

157.—ESSAY WRITING. Two hours. Associate Professor O'Leary.

158.—PROSE INVENTION. Two hours. Professor Hopkins.

160.—ELEMENTARY OLD ENGLISH. (Anglo-Saxon). Three hours. Assistant Professor Croissant.

161.—ELEMENTARY OLD ENGLISH. Two hours. Assistant Professor Croissant.

162.—MIDDLE ENGLISH. Two hours. Assistant Professor Croissant.

163.—MIDDLE ENGLISH. Two hours. Assistant Professor Croissant.

164.—ADVANCED OLD ENGLISH. Three hours. Assistant Professor Croissant.

165.—ENGLISH METRICAL ROMANCES. Two hours. Assistant Professor Croissant.

169.—METHODS OF TEACHING ENGLISH. Three hours. Professor Hopkins. (See course 186, School of Education.)

171.—AMERICAN LITERATURE. Three hours. Professor Hopkins.

172.—AMERICAN LITERATURE. Three hours. Professor Hopkins.

173.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours. Associate Professor O'Leary.

174.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Three hours. Associate Professor O'Leary.

175.—VICTORIAN LITERATURE, exclusive of the novel and Tennyson and Browning. Two hours. Professor Dunlap.

176.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours. Professor Dunlap.

177.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours. Professor Dunlap.

178.—SHAKSPERE. Three hours. Professor Dunlap.

179.—CHAUCER. Three hours. Professor Dunlap.

180.—SHELLEY AND KEATS. Two hours. Professor Dunlap.

181.—BROWNING AND TENNYSON. Three hours. Assistant Professor Lynn.

182.—CARLYLE AND EMERSON. Three hours. Assistant Professor Johnson.

183.—THE MODERN ENGLISH LYRIC. Two hours. Associate Professor Whitcomb.

184.—TECHNIC AND THEORY OF THE DRAMA. Two hours. Associate Professor Whitcomb.

185.—HISTORY OF THE ENGLISH DRAMA. Three hours. Assistant Professor Johnson.

186.—HISTORY OF THE ENGLISH DRAMA. Two hours. Associate Professor Whitcomb.

187.—THE ENGLISH NOVEL. Three hours. Professor Dunlap.

188.—THE ENGLISH ESSAY. Two hours. Associate Professor O'Leary.

189.—THE DEVELOPMENT OF ENGLISH PROSE. Three hours. Associate Professor Sisson.

## ENTOMOLOGY.

Professor HUNTER.

Mr. HUNGERFORD, Instructor.

100.—ORIGINAL INVESTIGATION. Five hours, throughout the year, by appointment. Experimental work in parthenogenesis. Professor Hunter.

101.—FIELD ENTOMOLOGY, BIOLOGICAL SURVEY. Five hours, throughout the year, including the Summer Session, by appointment. The department of entomology has already completed a survey of insect life in twenty-seven counties in the western part of the state. This work will be resumed at the opening of the Summer Session and the party will remain in camp until the first week in September. This course consists of a taxonomic study of all existing forms, extended investigations in



their life histories, and relations to environments. This course will afford an opportunity to several properly prepared students or teachers in the state who are interested in these problems to join the expedition and continue their work. Arrangements may be made whereby these investigators may obtain representatives from the duplicate material taken to add to their own collections or those of the institutions with which they are connected. The head of the department invites correspondence from those desiring appointments on this survey. Professor Hunter.

102.—MORPHOLOGICAL DEVELOPMENT. Five hours, throughout the year, by appointment. Problems assigned with reference to the attainments of individual students. Professor Hunter.

103.—ORCHARD LIFE AND FOREST LIFE. Five hours throughout the year, including the Summer Session, by appointment. The head of the department, as state entomologist, in connection with the State Entomological Commission, is conducting a comprehensive and detailed survey of the insect life as it pertains to the orchards and forestry of the state. In this work special attention is given to statistical methods and detailed illustrations of distribution by means of maps and charts. Arrangements have been made whereby a very limited number of well-prepared students may receive appointments for credit on this work. Professor Hunter.

104.—SEMINAR. One hour, throughout the year, by appointment. This course affords an opportunity for the presentation and discussion of current research in this branch of science. During the present year the subject for consideration is the influence of chemical and climatic stimuli upon developing forms.

NOTE.—Students should have a reading knowledge of French and German before taking up these courses.

The following courses are open to undergraduates and graduates. See "The College."

150.—GENERAL ENTOMOLOGY. Three hours, first semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Professor Hunter and Mr. Hungerford.

151.—GENERAL ENTOMOLOGY. Three hours, second semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Professor Hunter and Mr. Hungerford.

152.—SYSTEMATIC ENTOMOLOGY I. Two hours, first semester, Tuesday and Thursday, 1:30 to 3:30. Mr. Hungerford.

153.—SYSTEMATIC ENTOMOLOGY II. Two hours, second semester, Tuesday and Thursday, 1:30 to 3:30. Mr. Hungerford.

154.—MORPHOLOGY. Five hours, throughout the year, by appointment. Professor Hunter.

155.—TAXONOMY. Five hours, throughout the year, by appointment. Professor Hunter.

156.—APPLIED ENTOMOLOGY. Two hours, first semester, Tuesday and Thursday, at 10:15. Mr. Hungerford.

157.—HOME ECONOMIC ENTOMOLOGY. Two hours, second semester, 3:30 to 5:30. Mr. Hungerford.

158.—INSECTS AND DISEASE. Two hours, second semester, Tuesday and Thursday, 10:15. Professor Hunter.

159.—TEACHERS' COURSE. Three hours, second semester, 3:30 to 5:30. Professor Hunter and Mr. Hungerford.

## GEOLOGY AND MINERALOGY.

Professor HAWORTH.

Assistant Professor TODD.

Assistant Professor TWENHOFEL.

100.—DYNAMIC GEOLOGY. Each semester, five hours, by appointment. This will be a continuation of geology 56 in the College, which see. Opportunity is offered for students to elect dynamic geology either for a major or minor for the degree of master of arts or doctor of philosophy. Professor Haworth.

101.—PHYSIOGRAPHY. Each semester, five hours, by appointment. This will be a continuation of geology 54 in the College, which see. It should be preceded by or accompanied by geology 55 and 56 in the College. Opportunity is afforded for students to elect physiography either for a major or a minor for the degree of master of arts or doctor of philosophy. Professor Haworth.

102.—ECONOMIC GEOLOGY. First semester, five hours, by appointment. A comprehensive study of the metallic wealth of the world, including the geography and geology of ore deposits, methods of mining the ores and their commercial importance, following geology 52 in the College. Students so desiring may continue this study two or more terms and make it a major or minor for the degree of master of arts and in part a major for the degree of doctor of philosophy. Professor Haworth.

103.—ECONOMIC GEOLOGY. Second semester, five hours, by appointment. A comprehensive study of the nonmetallic mineral wealth of the world, following geology 53 in the College. Students so desiring may pursue this study for two or more terms, and may offer it as a major or minor for the degree of master of arts or in part a major for the degree of doctor of philosophy. Professor Haworth.

A student electing one of the above subjects as a major for the degree of doctor of philosophy must devote at least half his time to it for three years, and must present a dissertation embodying the results of original work done in connection therewith, in accordance with the general conditions governing the granting of this degree by this University and with the requirements of the department of geology.

Graduate students who have not had the prerequisites, as shown above, may take such studies in the College, but will be expected to do more work in them than undergraduate students in the same classes.

104.—SUMMER FIELD WORK. Opportunity is offered advanced students in geology, either graduate or undergraduate, to do field work in geology in connection with the University Geological Survey of Kansas, under the guidance of the department of geology, for which credit will be given the same as for work

done in the classroom and laboratory. By appointment. Professor Haworth.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

157.—INVERTEBRATE PALEONTOLOGY I. Five hours, first semester, by appointment. Assistant Professor Twenhofel.

158.—INVERTEBRATE PALEONTOLOGY II. Five hours, second semester, by appointment. In addition to the regular work of the course students will be given a problem involving some research. Assistant Professor Twenhofel.

*Mineralogy.*

105.—ADVANCED WORK AND ORIGINAL WORK IN MINERALOGY. Three, five or ten hours, throughout the year, by appointment. This course may be chosen by graduate students who have completed courses 1, 50 and 51 in the College and who wish to specialize in the subject of mineralogy. Professor Haworth and Assistant Professor Todd.

106.—ADVANCED WORK AND ORIGINAL WORK IN PETROGRAPHY. Three, five or ten hours, throughout the year, by appointment. This course may be chosen by graduate students who have completed courses 51, 52 and 53 in the College, and who wish to specialize in the subject of petrography. Professor Haworth.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

161.—SYSTEMATIC MINERALOGY. Five hours, first semester, by appointment. Assistant Professor Todd.

162.—PETROGRAPHY. Three hours, first semester, Monday, Wednesday and Friday, by appointment. Professor Haworth.

163.—PETROGRAPHY. Three hours, second semester, by appointment. Professor Haworth.

164.—VOLCANISM AND METAMORPHISM I. Three hours, second semester, by appointment. Professor Haworth.

GERMANIC LANGUAGES AND LITERATURES.

Professor CARRUTH.  
Associate Professor ENGEL.  
Associate Professor CORBIN.  
Assistant Professor KRUSE.  
Assistant Professor STURTEVANT.

100.—HISTORY OF THE GERMAN LANGUAGE. Two hours, first semester, Tuesday and Thursday, at 11:15. Introduction to philological study. Behagel, *Die Deutsche Sprache*; Kluge's *Vorgeschichte der altgermanischen Dialekte*, Brenner's *M. H. D. Grammatik*. Lectures and library work. Professor Carruth.

101.—GOTHIC. Three hours, first semester, Monday, Wednesday, and Friday, at 1:30. Braune's *Gothic Grammar*; Heyne's *Ulfilas*. Phonetics, grammar, and translation. Professor Carruth.



102.—OLD NORSE. Three hours, first semester, and two hours, second semester, by appointment. Noreen's *Altnordische Grammatik*; Holthausen's *Altisländisches Lesebuch*; The Elder Edda. Assistant Professor Sturtevant.

103.—MIDDLE HIGH GERMAN. Two hours, first semester, three hours, second semester, by appointment. Paul's *Mittelhochdeutsche Grammatik*. Nibelungenlied. Hartmann, *Der arme Heinrich*. Selections from Walther von der Vogelweide. Lectures. Associate Professor Engel.

104.—LUTHER AND THE SIXTEENTH CENTURY. Three hours, second semester, by appointment. Reading and grammatical study of the German literature of the Reformation, preceded by an outline of historical German grammar. Professor Carruth.

105.—GERMANIC MYTHOLOGY. Two hours, second semester, at 1:30. Mogk's *Deutsche Mythologie*. Professor Carruth.

106.—MODERN NORWEGIAN. Two hours, first semester, and three hours, second semester, by appointment. Olsen's *Grammar and Reader*, and selected texts. Assistant Professor Sturtevant.

107.—OLD HIGH GERMAN. Three hours, first semester, by appointment. Braune's *Althochdeutsche Grammatik und Lesebuch*. Assistant Professor Sturtevant.

108.—OLD SAXON. Two hours, second semester. Assistant Professor Sturtevant.

109.—THEME WRITING. Independent composition in German, journal reports, abstracts, etc. Two hours, second semester, by appointment. Professor Carruth and Assistant Professor Kruse.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

150.—GERMAN LITERATURE. Three hours, first semester, at 10:15. Professor Carruth.

151.—GERMAN LITERATURE OF THE EIGHTEENTH CENTURY. Three hours, second semester, at 10:15. Professor Carruth.

152.—HISTORY OF GERMAN PROSE FICTION. Three hours, second semester, at 10:15. Professor Carruth. (Alternating with 151.)

153.—THE LYRICS OF GOETHE. Two hours, first semester, by appointment. Associate Professor Corbin.

154.—THE ROMANTIC LYRIC. Continuation of 153. Three hours, second semester, at 8. Associate Professor Corbin.

155.—THE REALISTIC DRAMA. Three hours, first semester, at 8. Assistant Professor Kruse.

156.—THE NATURALISTIC DRAMA. Two hours, second semester, at 8, alternating with 157. Assistant Professor Kruse.

157.—THE DRAMA OF THE ROMANTICISTS. Two hours, second semester, at 8. Assistant Professor Kruse.

158.—MODERN SWEDISH. Two hours, first semester, and three hours, second semester, by appointment. Fort's *Elementary Swedish Grammar*, Hildebrand's *Läsebok*; Esaias Tegnér's *Fritiofssaga* and *Nattwardsbarnen*. Assistant Professor Sturtevant.



159.—TEACHERS' COURSE. Three hours, second semester. Advanced grammar, with theory and practice of language teaching. Intended especially for those who desire to fit themselves for teaching German in high schools. Open only to the best students of the department. Professor Carruth and Associate Professor Corbin. (See School of Education 63.)

## GREEK.

Professor WILCOX.

Associate Professor STERLING.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

150.—THE CLOUDS OF ARISTOPHANES AND MEMORABILIA OF XENOPHON. Three hours, first semester, at 9, or by appointment. Professor Wilcox. (Not given in 1912-'13.)

151.—THE GORGIAS OF PLATO. Two hours, first semester, at 9, or by appointment. Professor Wilcox. (Not given in 1912-'13.)

152.—HOMER'S ODYSSEY. Three hours, second semester, at 9, or by appointment. Professor Wilcox. (Not given in 1912-'13.)

153.—THUCYDIDES. Two hours, second semester, at 9, or by appointment. Professor Wilcox. (Not given in 1912-'13.)

154.—GREEK LITERARY CRITICISM. Three hours, first semester, at 9. Professor Wilcox.

155.—LYRIC POETRY. Two hours, first semester, at 9. Professor Wilcox.

156.—GREEK LITERARY CRITICISM. Two hours, second semester, at 9. Professor Wilcox.

157.—LYRIC POETRY. Three hours, second semester, at 9. Professor Wilcox.

The following courses may be taken as a minor:

158.—THE GREEK IN ENGLISH. Three hours, first semester, at 10:15. Associate Professor Sterling.

## COURSES WHICH REQUIRE NO KNOWLEDGE OF THE GREEK LANGUAGE.

159.—GREEK LITERATURE IN TRANSLATIONS. Two hours, first semester, at 11:15. Professor Wilcox.

160.—GREEK DRAMA IN TRANSLATIONS. Two hours, second semester, at 11:15. Professor Wilcox.

161.—GREEK ARCHITECTURE. Two hours, first semester, at 11:15. Professor Wilcox.

162.—GREEK SCULPTURE AND PAINTING. Three hours, second semester, at 11:15. Professor Wilcox.

## HISTORY AND POLITICAL SCIENCE.

Professor HODDER.  
 Professor BECKER.  
 Associate Professor PATTERSON.  
 Associate Professor DYKSTRA.  
 Assistant Professor CRAWFORD.  
 Assistant Professor DAVIS.

*History.*

100 and 101.—SEMINAR IN EUROPEAN HISTORY. Five hours' credit, first and second semesters, hours by appointment. A study of the sources in some restricted field and the preparation of papers based upon them. Designed to give practical experience in historical investigation. The period studied will be England during the American Revolution. Professor Becker.

102 and 103.—SEMINAR IN AMERICAN HISTORY. Three or five hours' credit, first and second semester, hours by appointment. Practice work with source material. The subjects for investigation will be taken from the history of the trans-Missouri West. Professor Hodder.

*Political Science.*

104 and 105.—SEMINAR IN POLITICAL SCIENCE. Three hours' credit, first and second semesters, hours by appointment. Individual investigation under the direction of the instructor. The topics will be in the field of American political parties and party reform. Open, by permission, to Seniors. Assistant Professor Dykstra.

106.—POLITICAL THEORIES. Two hours, second semester, at 11:15. A brief review of ancient and mediæval political philosophy, followed by a study of modern English and continental political theories. Associate Professor Dykstra.

The following courses are open to advanced undergraduates also. For full description, see "The College."

*History.*

150.—ADVANCED GREEK HISTORY. First semester, two hours, at 11:15. Associate Professor Patterson.

151.—ADVANCED ROMAN HISTORY. Second semester, two hours, at 11:15. Associate Professor Patterson.

153.—MEDIÆVAL INSTITUTIONS. First semester, two hours, at 9. Associate Professor Patterson.

155.—THE PROTESTANT REVOLT. Second semester, two hours, at 9. Associate Professor Patterson.

158 and 159.—HISTORY OF THE ENGLISH COMMON LAW. First and second semesters, two hours, at 10:15. Assistant Professor Crawford.

160.—EUROPE IN THE EIGHTEENTH CENTURY. First semester, two hours, at 1:30. Professor Becker.

161.—FRENCH REVOLUTION. Second semester, two hours, at 1:30. Professor Becker.

162 and 163.—EUROPE IN THE NINETEENTH CENTURY. First and second semesters, three hours, at 1:30. Professor Becker.

164.—AMERICAN COLONIAL HISTORY. First semester, three hours, at 2:30. Professor Hodder.

165.—THE REVOLUTION AND THE CONSTITUTION. Second semester, three hours, at 2:30. Professor Hodder.

166 and 167.—PRESIDENTIAL ADMINISTRATIONS. First and second semesters, five hours, at 3:30. Professor Hodder.

168.—HISTORICAL METHOD. First semester, two hours, at 2:30. Professor Becker.

### *Political Science.*

150.—INTRODUCTION TO POLITICAL SCIENCE. First semester, three hours, at 9. Associate Professor Dykstra.

151.—EUROPEAN GOVERNMENT. Second semester, three hours, at 11:15. Assistant Professor Davis.

152.—AMERICAN CONSTITUTIONAL LAW. First semester, two hours, at 2:30. Professor Hodder.

153.—INTERNATIONAL LAW. Second semester, two hours, at 2:30. Professor Hodder.

154.—GOVERNMENT OF DEPENDENCIES. First semester, two hours, at 11:15. Assistant Professor Davis.

155.—MUNICIPAL GOVERNMENT. Second semester, three hours, at 9. Associate Professor Dykstra.

### HOME ECONOMICS.

Professor DAY.

100.—RESEARCH COURSE. Three to five hours, either semester, by appointment. Original investigation of some unsolved problem relating to the home. Open to graduate students who have sufficient preparation. Professor Day.

The following courses are open to undergraduates also:

151.—DIETETICS. Three hours, first semester, at 3:30. Professor Day.

152.—SPECIAL PROBLEMS IN FOOD PREPARATION AND DIETETICS. Five hours, second semester. Professor Day.

### INDUSTRIAL RESEARCH.

Professor DUNCAN.

Associate Professor BUSHONG.

Research in the following subjects is now being conducted:

7.—THE RELATION BETWEEN THE OPTICAL PROPERTIES OF GLASS AND ITS CHEMICAL COMPOSITION. E. Ward Tillotson, PH. D.

8.—IMPROVEMENTS IN THE MANUFACTURE OF PORTLAND CEMENT AND LIME. J. F. Mackey, PH. D.

9.—AN INVESTIGATION INTO THE EXTRACTIVE PRINCIPLES OF THE GLANDS OF DEEP-SEA MAMMALS. E. R. Weidlein, A. M.

10.—RESISTIVE COATINGS AND SYNTHETIC PLASTICS. L. V. Redman, A. M., Archie J. Weith, B. S., Frank P. Brock, B. S.

12.—IMPROVEMENTS IN THE DYEING OF VEGETABLE IVORY AND THE UTILIZATION OF VEGETABLE IVORY WASTE. J. P. Trickey, B. S.

13.—THE UTILIZATION OF PETROLEUM IN THE MANUFACTURE OF SOAP. F. W. Bushong, Sc. D., I. W. Humphrey, A. B.

14.—THE UTILIZATION OF GILSONITE. W. E. Vawter, B. S.

### LATIN LANGUAGE AND LITERATURE.

Professor WALKER.  
Associate Professor OLIVER.  
Assistant Professor MURRAY.

100.—THE TOPOGRAPHY OF ROME. Two hours, second semester, Wednesday and Friday, at 10:15. Lectures and reading. Illustration by the use of photographs and stereopticon. Each member of the class will present written reports on subjects investigated by himself. Associate Professor Oliver.

101.—INVESTIGATION IN ROMAN POLITICAL INSTITUTIONS. Two to five hours, first semester, by appointment. Given only in connection with course 157. This course will be conducted by additional lectures, and by additional investigations by members of the course. Assistant Professor Murray.

102.—LATIN EPIGRAPHY. Three hours, second semester, Monday, Wednesday, and Friday, at 2:30. This course has as its object an acquaintance with the forms and subject matter of Latin inscriptions. Members will be assigned investigations of the contributions of epigraphy to political, constitutional, and economic history, and to other fields. Assistant Professor Murray.

103.—INVESTIGATION IN LATIN EPIGRAPHY. Two to five hours, by appointment. Given only in connection with course 102. Additional investigation of special topics will be expected of members of the course. Assistant Professor Murray.

104.—SEMINAR. Three or five hours, first semester, by appointment. An author or some limited portion of the field of Latin study is chosen each year for special investigation by the graduate students of the department. The work consists largely of papers by members of the course, the object being to train students for original investigation. Latin syntax has been chosen for the year 1912-'13. Professor Walker.

105.—SEMINAR (continued). Five hours, second semester, by appointment. A subject for the thesis required of all candidates for the degree of master of arts is expected to present itself in the course of the work, and in the second term a portion of the time is devoted to the working up of that subject. Professor Walker.

The following courses are open to undergraduates also. For description, see "The College."



150.—ADVANCED PROSE COMPOSITION. Two hours, first semester, at 1:30. Professor Walker.

151.—PLAUTUS. Two hours, first semester, at 9. Assistant Professor Murray.

152.—VERGIL'S ECLOGUES AND GEORGICS. Two hours, second semester, at 10:15. Assistant Professor Oliver.

153.—LUCRETIVS. Three hours, first semester, at 1:30. Associate Professor Oliver.

154.—THE ANNALS OF TACITUS. Three hours, second semester, at 9. Assistant Professor Murray.

155.—JUVENAL. (Not given in 1912-'13.)

156.—LITERATURE OF THE EMPIRE. (Not given in 1912-'13.)

157.—ROMAN POLITICAL INSTITUTIONS. Three hours, first semester, at 9. Assistant Professor Murray.

158.—CÆSAR'S GALLIC CAMPAIGNS. (Not given in 1912-'13.)

159.—VERGIL. Three hours, second semester, at 1:30. Professor Walker.

160.—TEACHER'S COURSE IN LATIN. Two hours, first semester, at 10:15. Professor Walker.

## LAW.

Professor GREEN.

Professor BURDICK.

Professor HIGGINS.

Professor HILL.

Associate Professor HUMBLE.

100.—CONSTITUTIONAL LAW. Five hours' credit. Daily, second semester, at 11:15. General principles governing constitutions; the United States and the states; establishment and amendment of constitutions; construction and interpretation; departmental powers, police power; eminent domain; taxation; civil rights; constitutional guaranties; laws impairing the obligation of contracts; retroactive laws. Professor Green.

101.—COMMON LAW PLEADING. Two and one-half hours' credit. Daily, first half of first semester, at 8. An analytical and historical study of the law of remedies at common law, including ancient modes of trial; special topics assigned, such as assumpsit, trover, trespass, for historical investigation of the development of the law of contracts and of torts. Professor Higgins.

102.—JURISPRUDENCE. Two and one-half hours' credit. Daily, first half of first semester, at 11:15. An analytical study of the elements of jurisprudence, viz.: the science of human relations regulated by positive law; the theories of the state, sovereignty and government; an historical examination of the systems of English and American common law and equity. Selected readings. Special topics and weekly conferences. Associate Professor Humble.

103.—ROMAN LAW. One hour a week for twenty-seven weeks, first semester and first half of second semester, at 9.

Development and extension of Roman law; its revival and present influence; the *corpus juris civilis*; the law of persons, of the family, of property, of servitude, of obligations, of delicts, of inheritance, of procedure, of criminal law, etc. Professor Burdick.

### MATHEMATICS.

Associate Professor VAN DER VRIES.

Associate Professor ASHTON.

Assistant Professor MITCHELL.

Assistant Professor WHITE.

100.—THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. Three hours, throughout the year, by appointment. An introduction to the general theory of functions of a complex variable. Associate Professor Ashton.

101.—THEORY OF FUNCTIONS OF A REAL VARIABLE. Three hours, throughout the year, by appointment. The theory of assemblages, limits, continuity, convergence, derivatives, integrals, etc. Assistant Professor Mitchell.

102.—THEORY OF ELLIPTIC FUNCTIONS. Three hours, throughout the year. Associate Professor Ashton.

103.—THEORY OF ALGEBRAIC FUNCTIONS AND THEIR INTEGRALS. Three hours, throughout the year. (Not to be given in 1912-'13.)

104.—CALCULUS OF VARIATIONS. Two hours a week, throughout the year, by appointment. The conditions for minimizing an integral by curves in a plane and in space, with applications to geometry and mechanics. Assistant Professor White.

110.—THEORY OF CURVES AND SURFACES. Three hours, throughout the year. Associate Professor Van der Vries.

111.—DIFFERENTIAL GEOMETRY. Two hours, throughout the year by appointment. Applications of the calculus to the theory of curves and surfaces. (Not to be given in 1912-'13.)

112.—ALGEBRAIC INVARIANTS AND COVARIANTS. Three hours, throughout the year, by appointment. An introduction to modern methods in the algebra of invariants and covariants; binary forms, Gordan's theorem, apolarity and rational curves, ternary forms and geometrical applications. Associate Professor Van der Vries.

113.—PROJECTIVE GEOMETRY. Three hours, throughout the year, by appointment. The logical foundations of projective geometry; principle of duality; projective transformations in one-, two- and three-dimensional forms; conic sections; introduction of analytic methods on a synthetic basis. The general projective group and its important subgroups. Assistant Professor Mitchell.

114.—FOURIER'S SERIES, AND THE POTENTIAL FUNCTION. Three hours, throughout the year, by appointment. Development of functions in Fourier's series, with applications to the solution of problems in physics. Introduction to spherical harmonics. The potential function. Prerequisites, courses 50, 51, 55. Associate Professors Ashton and Rice.

120.—CELESTIAL MECHANICS. Three hours, throughout the year, by appointment. Rectilinear motion, central forces, attraction, and potential, the two-body problem, general integrals of the problem of  $n$  bodies, the three-body problem, perturbations. Moulton's Celestial Mechanics and collateral reading. (Not to be given in 1912-'13.)

The following courses may also be taken by advanced undergraduates. For description, see "The College."

150.—ANALYTICAL MECHANICS. Second semester, three hours, at 10:15. Associate Professor Van der Vries.

151.—DIFFERENTIAL EQUATIONS. First semester, three hours, at 10:15. Assistant Professor White.

152.—ADVANCED CALCULUS I. First semester, two hours, at 11:15. Associate Professor Ashton.

153.—ADVANCED CALCULUS II. Second semester, three hours, at 11:15. Associate Professor Ashton.

154.—SOLID ANALYTIC GEOMETRY. Second semester, two hours, at 11:15. Assistant Professor White.

155.—HIGHER ALGEBRA I. First semester, three hours, at 11:15. Assistant Professor Mitchell.

156.—HIGHER ALGEBRA II. Second semester, two hours, at 11:15. Assistant Professor Mitchell.

157.—COMPLEX NUMBERS. Second semester, two hours, at 10:15. Associate Professor Ashton.

158.—GALOIS'S THEORY OF EQUATIONS. First semester, two hours, at 10:15. Associate Professor Ashton.

159.—MODERN GEOMETRY II. First semester, three hours, at 9. Associate Professor Van der Vries.

160.—HISTORY OF MATHEMATICS. First semester, two hours, at 9. Assistant Professor Mitchell.

189.—TEACHERS' COURSE. Second semester, two hours. Assistant Professor Mitchell.

## MEDICAL SCIENCES.

Professor SUDLER.

Professor BARBER.

Associate Professor TRIMBLE.

Associate Professor HERTZLER.

The following courses in medical science are given at Rose-dale:

100.—BACTERIOLOGY. Five or ten hours, first or second semester, or both semesters, by appointment. Professor Barber.

101.—PATHOLOGY. Five or ten hours, first or second semester, or both semesters, by appointment. Associate Professor Trimble.

102.—SURGICAL PATHOLOGY. Five or ten hours, first or second semester, or both semesters, by appointment. Associate Professor Hertzler.

## PHARMACY.

Professor Sayre.

Assistant Professor EMERSON.

For equipment, see under School of Pharmacy.

100.—PHYTOCHEMISTRY (Plant Chemistry). Five hours, first or second semester. Original investigation and research work on the chemical constituents of plants, dealing especially with such constituents as exert a marked physiological action when introduced into the animal economy. Professor Sayre and Assistant Professor Emerson.

101.—ADVANCED COURSE IN THE CHEMISTRY OF DIGESTION. Lectures, recitation and laboratory work on the chemistry of digestion. The last half semester devoted to research work on the digestion of foodstuffs. Five hours, first semester. Professor Sayre and Assistant Professor Emerson.

The following courses are open to advanced undergraduates also. For description, see "The College."

150.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. Assistant Professor Emerson.

151.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Professor Sayre and Assistant Professor Emerson.

## PHILOSOPHY.

Professor TEMPLIN.

Professor BOODIN.

Assistant Professor ROGERS.

Assistant Professor MITCHELL.

Mr. DOCKERAY.

100.—SEMINAR. Five or ten hours, first semester, by appointment. Opportunity will be given graduate students to continue in a more exhaustive manner the study of any of the subjects offered in the College courses, and to engage in original investigation of unsolved problems. The work will be arranged to suit the special needs of individual students and will be under the immediate supervision of some instructor in the department.

101.—SEMINAR. Five or ten hours, second semester, by appointment. A continuation of the preceding course.

102.—PSYCHOLOGICAL SEMINAR. Three, five, or ten hours, first semester. Opportunity is given graduate students for the advanced study of special topics in psychology. The organization of the seminar will take different forms to meet the needs of its members. Individual study of theoretical questions will be provided for by individual appointment. Group study of theoretical questions will be conducted through weekly meetings. For those who wish to undertake laboratory research, a schedule will be arranged for exchange of hours in participating in turn as experimenter and as subject, and for occasional meetings for the discussion of methods and results.

103.—PSYCHOLOGICAL SEMINAR. Three, five, or ten hours, second semester. A continuation of course 102.



The following courses are also open to advanced undergraduates. For description, see "The College."

151.—**PSYCHOLOGY OF THOUGHT.** Three hours, second semester, in alternate years, at 9. Mr. Dockeray.

152.—**FEELING AND WILL.** Three hours, first semester, in alternate years; given in 1912-'13, at 9. Assistant Professor Rogers.

153.—**COMPARATIVE PSYCHOLOGY.** Three hours, second semester, in alternate years, at 9. Mr. Dockeray.

154.—**SOCIAL PSYCHOLOGY.** Two hours, first semester, at 9. Professor Boodin.

157.—**PHYSIOLOGICAL PSYCHOLOGY.** Three hours, first semester. Assistant Professor Rogers.

158.—**PHYSIOLOGICAL PSYCHOLOGY.** Three hours, second semester. Assistant Professor Rogers.

160.—**HISTORY OF PHILOSOPHY.** Two hours, first semester, at 10:15. Professor Boodin.

161.—**HISTORY OF PHILOSOPHY.** Three hours, second semester, at 10:15. Professor Boodin.

162.—**PHILOSOPHICAL CLASSICS.** Two hours, first semester, at 10:15. Professor Boodin.

163.—**PHILOSOPHICAL CLASSICS.** Two hours, second semester, at 10:15. Professor Boodin.

164.—**THE THEORY OF KNOWLEDGE.** Three hours, first semester, at 9. Professor Boodin.

165.—**METAPHYSICS.** Three hours, second semester, at 9. Professor Boodin.

166.—**THE PHILOSOPHY OF RELIGION.** Two hours, second semester, at 9. Professor Boodin.

170.—**SYSTEMATIC ETHICS.** Two hours, first semester, at 8. Professor Templin.

171.—**PRACTICAL ETHICS.** Two hours, second semester, at 8. Professor Templin.

172.—**ESTHETICS.** Two hours, second semester, at 8. Professor Templin.

## PHYSICS AND ASTRONOMY.

Professor KESTER.

Associate Professor M. E. RICE.

Assistant Professor STIMPSON.

Mr. T. T. SMITH, Instructor.

Mr. ———, Instructor.

### *Physics.*

100.—**GRADUATE LABORATORY.** Two to five hours, either semester, by appointment. Professor Kester and Associate Professor Rice.

101.—**THEORETICAL MECHANICS.** Three hours, through first and second semesters, by appointment. Lectures, with a prob-

lem hour each week. Prerequisites, course 50 or its equivalent, and another course of the same grade. Offered in alternate years. (Not offered in 1912-'13.)

102.—THEORY OF HEAT AND THERMODYNAMICS. Two hours, through first and second semesters, by appointment. Lectures, and problems. A development of Gibbs's ideas of thermodynamic potentials and of equilibrium in systems containing several components in various phases. Prerequisites, courses 50 and 51, or 52 and 53, or equivalents. Offered in alternate years. (Not offered in 1912-'13.) Professor Kester.

103.—THEORY OF ELECTRICITY. Three hours, through first and second semesters, by appointment. Lectures, and problems. Prerequisites, course 52 or its equivalent, and another course of the same grade. Offered in alternate years. Professor Kester.

104.—ADVANCED OPTICS. Two hours, through first and second semesters, by appointment. Lectures and problems. A development of the electromagnetic theory of light, of the Abbe theory of optical instruments, etc. Prerequisites, course 51 or its equivalent, and another course of the same grade. Offered in alternate years. Mr. Smith.

Courses 101, 102, 103 and 104 together form a two-year cycle, developing the fundamental parts of physics in a rigorous and detailed manner. Other courses, covering more special (in some cases newer) topics, are listed below.

105.—ELECTRON THEORY. Two hours, throughout the year, by appointment. Theory of electromagnetic mass and of conduction of electricity through metals. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. Offered in alternate years. (Not offered in 1912-'13.) Professor Kester.

106.—OSCILLATORY ELECTRIC CURRENTS AND ELECTROMAGNETIC WAVES. Three hours, second semester, by appointment. Lectures and problems, giving the principles which underlie wireless telegraphy and telephony. Prerequisites, course 52 or its equivalent, another course of same grade and some differential equations. Offered in alternate years. (Not offered in 1912-'13.) Associate Professor M. E. Rice.

107.—RESEARCH AND THESIS. Three to ten hours, either semester. Students who are carrying on original investigation (either experimental or theoretical) in physics will register in this course. Professor Kester and Associate Professor M. E. Rice.

114 (also Mathematics 114).—FOURIER'S SERIES AND THE POTENTIAL FUNCTION. Three hours, throughout the year, by appointment. Development of functions in Fourier's series, with applications to the solutions of problems in physics. Introduction to spherical harmonics. The potential function, with applications to problems in electricity. Prerequisites, physics 50 or mathematics 50, mathematics 51 and 55, or equivalent. Offered in alternate years. Associate Professors M. E. Rice and Ashton.

The following courses may be taken by advanced undergraduates also. For description, see "The College."

150.—MECHANICS AND HEAT. Three hours, first semester, by appointment. Professor Kester.

It is recommended that this course be followed by Mathematics 50, Analytic Mechanics. Three hours. Assistant Professor White.

151.—LIGHT AND RADIANT ENERGY. Three hours, second semester, by appointment. Mr. T. T. Smith. (Not offered in 1912-'13.)

152.—ELECTRICITY. Three hours, first semester, Monday, Wednesday, and Thursday, at 11:15. Associate Professor M. E. Rice.

153.—RADIOACTIVITY AND CONDUCTION OF ELECTRICITY THROUGH GASES. Three hours, second semester. Professor Kester.

154.—PHYSICS LABORATORY. Mechanics and heat. Two to five hours, by appointment. Professor Kester.

155.—PHYSICS LABORATORY. Light and radiant energy. Two to five hours, by appointment. Mr. T. T. Smith.

156.—PHYSICS LABORATORY. Electricity. Two to five hours, by appointment. Associate Professor M. E. Rice.

157.—PHYSICS LABORATORY. Radioactivity. Two to five hours, by appointment. Professor Kester.

158.—ADVANCED LABORATORY. Two to five hours, first semester. Professor Kester and Associate Professor M. E. Rice.

159.—ADVANCED LABORATORY. Two to five hours, second semester, by appointment. Professor Kester and Associate Professor M. E. Rice.

160.—OPTICAL INSTRUMENTS. Three hours, second semester, by appointment. Mr. T. T. Smith.

161.—ALTERNATING AND OSCILLATING CURRENTS. Three hours, second semester, by appointment. Associate Professor M. E. Rice.

163.—PHYSICS COLLOQUIUM. One hour, either semester, by appointment.

180.—TEACHERS' COURSE IN PHYSICS. Three hours, second semester, at 4:30. Assistant Professor Stimpson.

*Astronomy.*

Open to undergraduates and graduates.

170.—INTRODUCTION TO ASTROPHYSICS. Three hours, first semester, by appointment. A study of the principles, methods and instruments employed in investigating the physical conditions of celestial bodies. Lectures and laboratory work. Prerequisites: Astronomy 50, physics 5 and 6 or equivalent, and analytic geometry and calculus. Mr. ———.

171.—INTRODUCTION TO CELESTIAL MECHANICS. Three hours, second semester, by appointment. Prerequisites: Astronomy 50, physics 5 and 6 or equivalent, and analytic geometry and calculus. Mr. ———.

## PHYSIOLOGY.

Professor HYDE.  
 Assistant Professor SCOTT.  
 Miss WALLING, Instructor.

100.—PHYSIOLOGY. Ten hours, first semester, 8 to 12:15, and half of second semester, 8 to 11:15. Advanced experimental physiology. Open to graduates who have taken not less than a year of anatomy and have given evidence that they are prepared for it. Recitations and lectures, with demonstrations, conferences and journal club, and laboratory experimental work. Professor Hyde and Assistant Professor Scott.

101.—PHYSIOLOGY. Five or ten hours, either semester or both, by appointment. Original research, open to graduates who have had either course 51 or 100 in physiology. Professor Hyde.

102.—SEMINAR OF EXPERIMENTAL PHYSIOLOGY. Two to five hours, either semester, by appointment. A research course for advanced students who are prepared for it. Professor Hyde.

The following course is open to advanced undergraduates also. See "The College."

150.—ADVANCED EXPERIMENTAL PHYSIOLOGY. Five hours, either semester or both, by appointment. Professor Hyde.

## ROMANCE LANGUAGES.

Professor GALLOO.  
 Assistant Professor NEUEN SCHWANDER.  
 Assistant Professor OWEN.  
 Miss STANTON.

*French.*

100.—OLD FRENCH. Three hours, first semester. Phonology and morphology of old French, with some discussion of syntax. *Le Pèlerinage de Charlemagne à Jérusalem; Aucassin et Nicolette.* Must be preceded by courses 161 and 162 or their equivalents. Professor Galloo.

101.—HISTORY OF THE FRENCH LANGUAGE. Three hours, second semester, by appointment. Its rise from Low Latin; the addition from other sources; its growth and modifications. Professor Galloo.

102.—PROVENÇAL. Two hours, first semester, by appointment. Grandgent's *Provençal Phonology and Morphology* and Bartsch's *Chrestomathie Provençale*. Assistant Professor Neuen Schwander.

103.—MEDIÆVAL FRENCH LITERATURE. Three hours, second semester, by appointment. From the first literary monuments to the Renaissance. Professor Galloo.

104.—FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Two hours, first semester, by appointment. The Renaissance in French literature. The beginnings of Classicism. The *Pléiade*. Professor Galloo.

105.—MOLIERE. Three hours, first semester, by appointment.



Same course as 8, with additional requirements. Study of Molière; his life and surroundings; his plays—their sources and influence. One or more essays will be written, preferably in French. Professor Galloo.

106.—THE LITERARY MOVEMENT IN THE SECOND HALF OF THE NINETEENTH CENTURY. Three hours, second semester, by appointment. The reaction against Romanticism, the Parnassiens, realism and naturalism. The reaction against the scientific spirit; idealism and symbolism. The rise and growth of the new literary criticism. A large amount of reading is required. Reports and an essay in French. Professor Galloo.

107 and 108.—SEMINAR. Five hours, each semester, by appointment. Research course for advanced students, who will be given an opportunity, under the immediate supervision of the department, to carry on investigation in the field of Romance linguistics or literature. Professor Galloo.

The following courses are open to undergraduates also. For description, see "The College."

152.—HISTORY OF EARLY FRENCH LITERATURE. Three hours, first semester, Monday, Wednesday, and Friday, at 9. Professor Galloo.

153.—HISTORY OF MODERN FRENCH LITERATURE. Three hours, second semester, Monday, Wednesday, and Friday, at 9. Professor Galloo.

154.—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours, second semester, by appointment. Miss Stanton.

155.—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours, second semester, by appointment. Assistant Professor Neuen Schwander.

156.—THE ROMANTIC SCHOOL (1800-1835) I. Two hours, first semester, at 9. Professor Galloo.

157.—THE ROMANTIC SCHOOL (1800-1835) II. Two hours, second semester, at 9. Professor Galloo.

158.—DEVELOPMENT OF THE FRENCH NOVEL I. Two hours, first semester, at 9. Professor Galloo.

159.—DEVELOPMENT OF THE FRENCH NOVEL II. Three hours, second semester, at 9. Professor Galloo.

160.—THE FRENCH DRAMA. Three hours, first semester, Monday, Wednesday, and Friday, at 1:30. Miss Stanton.

161.—OLD FRENCH. Two hours, first semester, by appointment. Professor Galloo.

162.—OLD FRENCH. Two hours, second semester, by appointment. Professor Galloo.

163.—TEACHERS' COURSE. Three hours, second semester, by appointment. Professor Galloo.

*Spanish.*

100.—EARLY SPANISH. Two hours, second semester, by appointment. Menéndez Pidal's *Manual de gramática histórica española*; *Poema del Cid* (Menéndez Pidal ed.) and *Poema de Fernán González* (Marden ed.). Assistant Professor Owen.

The following courses are open to undergraduates also. For description, see "The College."

152.—DON QUIXOTE. Three hours, second semester, at 2:30. Assistant Professor Owen.

153.—HISTORY OF EARLY SPANISH LITERATURE. Three hours, first semester, at 1:30. Assistant Professor Owen.

154.—HISTORY OF MODERN SPANISH LITERATURE. Three hours, second semester, at 1:30. Assistant Professor Owen.

155.—THE SPANISH NOVEL OF THE SIXTEENTH AND SEVENTEENTH CENTURIES. Two hours, first semester, by appointment. Assistant Professor Owen.

156.—THE CLASSIC SPANISH DRAMA. Two hours, second semester, by appointment. Assistant Professor Owen.

## SOCIOLOGY.

Professor BLACKMAR.

Assistant Professor HELLEBERG.

100.—SEMINAR OF SOCIOLOGY. Two to ten hours, each semester, by appointment. This is a research course for advanced students. Applicants for admission to the seminar must satisfy the instructors of their preparation and ability to undertake original investigation. Each student must pursue a definite line of work under the direction of one of the instructors. Professor Blackmar, and Assistant Professor Helleberg.

101.—AMERICAN AND EUROPEAN CHARITIES. Five hours, by appointment. Research course. A study of charities administration in the United States and some of the principal cities of Europe. Personal investigation of American charitable institutions, with special reference to methods of state control. Assistant Professor Helleberg.

102.—PREPARATION FOR PUBLIC SERVICE. Three hours, second semester, Monday, Wednesday, and Friday, by appointment. A study of the administration of charitable and penal institutions. The business administration of public affairs. Preparation for civil service. A research course in the library supplemented by the investigation of institutions by visitation. Lectures by experienced officials on institutional administration and practical politics. For advanced students who desire to prepare for public service. Professor Blackmar.

105.—AMERICAN ETHNOLOGY. Five hours, by appointment. Research course in the natural races of America. Migration and geographical distribution of tribes. Comparative characteristics of tribes and ethnic groups. Government and organiza-

tion of tribes. The beginnings of civilization, the food supply, and the progress in the industrial arts. Professor Blackmar.

106.—EUGENICS. Three hours, second semester, by appointment. A study of the agencies under social control that may improve or impair racial qualities, either mentally, morally or physically. Organic evolution is a prerequisite for this course. For graduates only. Professor Blackmar.

107.—DEVELOPMENT OF SOCIOLOGICAL THEORY. Three hours, by appointment, first semester. A rapid historical survey of social philosophy from Plato to Comte, followed by a more detailed examination of current sociological theories. Assistant Professor Helleberg.

The following courses are open to undergraduates and graduates:

150.—ELEMENTS OF SOCIOLOGY. Three hours, first semester, Monday, Wednesday, and Friday, at 1:30. Professor Blackmar.

151.—APPLIED SOCIOLOGY. Three hours, second semester, Monday, Wednesday, and Friday, at 1:30. Professor Blackmar.

152.—SOCIAL PATHOLOGY. Two hours, first semester, Tuesday and Thursday, at 1:30. Assistant Professor Helleberg.

153.—REMEDIAL AND CORRECTIVE AGENCIES. Two hours, second semester, Tuesday and Thursday, at 1:30. Assistant Professor Helleberg.

154.—SOCIALIZATION AND SOCIAL CONTROL. Three hours, first semester, Monday, Wednesday, and Friday, at 2:30. Assistant Professor Helleberg.

155.—PSYCHOLOGICAL SOCIOLOGY. Three hours, second semester, Monday, Wednesday, and Friday, at 2:30. Assistant Professor Helleberg.

156.—THE FAMILY. Two hours, first semester, at 2:30. Assistant Professor Helleberg.

157.—SOCIALISM. Two hours, first semester, Tuesday and Thursday, at 2:30. Assistant Professor Helleberg.

158.—ANTHROPOLOGY. Two hours, first semester, Tuesday and Thursday, at 8. Professor Blackmar.

159.—ETHNOLOGY. Two hours, second semester, Tuesday and Thursday, at 8. Professor Blackmar.

160.—RURAL SOCIOLOGY. Three hours, second semester, at 1:30, alternating with applied sociology. (Given in 1913.) Professor Blackmar.

164.—CONTEMPORARY SOCIETY IN THE UNITED STATES. Two hours, second semester, Tuesday and Thursday, at 3:30. Assistant Professor Helleberg.

## ZOOLOGY.

Professor McCLUNG.

Professor DYCHE.

Assistant Professor BAUMGARTNER.

Assistant Professor MOODIE.

Assistant Professor HEUSER.

100.—SEMINAR. Students working for a degree with the major in the department of zoölogy will register in this course for credit in work done in preparation for their theses. Credit will be given only upon a satisfactory presentation of the subject matter of the thesis before the department Faculty.

101.—ADVANCED WORK IN MORPHOLOGICAL ZOÖLOGY. Five or ten hours, throughout the year. Professor McClung.

102.—ADVANCED WORK IN SYSTEMATIC AND DESCRIPTIVE ZOÖLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

103.—ADVANCED WORK IN HISTOGENESIS AND ORGANOGENESIS. Five or ten hours, throughout the year, by appointment. Professor McClung.

104.—ADVANCED WORK IN CYTOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

105.—ADVANCED WORK IN VERTEBRATE PALEONTOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

106.—MUSEUM WORK AND METHODS. Five hours, by appointment, first semester. Professor Dyche.

107.—COMPARATIVE ANATOMY AND OSTEOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

The following courses may be taken by advanced undergraduates also. For description, see College catalogue.

151.—FIELD WORK AND LIFE HISTORIES. Three hours, second semester, Monday and Friday, at 3:30, and Saturday morning. Assistant Professor Baumgartner.

153.—HISTOLOGY, OR MICROSCOPIC ANATOMY. Five hours, first semester, 3:30 to 5:30. Assistant Professor Baumgartner.

154.—CYTOLOGY, OR CELLULAR BIOLOGY. Five or ten hours, throughout the year, by appointment. Professor McClung.

155.—EMBRYOLOGY. Five hours, second semester, by appointment. Assistant Professor Heuser.

156.—PALEOZOÖLOGY. Five hours, by appointment, first or second semester. Professor McClung or Assistant Professor Moodie.

157.—FIELD AND MARINE STATION WORK. Three, six or nine hours, summer term.

162.—ORGANIC EVOLUTION. Three hours, first semester, at 9. Professor McClung and Professor Stevens.



## II. *The College of Liberal Arts and Sciences.*

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### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM H. CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.

OLIN TEMPLIN, A. M., Dean, and Professor of Philosophy.

EPHRAIM MILLER, PH. D., Emeritus Professor of Mathematics and Astronomy.

EDGAR H. S. BAILEY,\* PH. D., Professor of Chemistry and Metallurgy.

ALEXANDER M. WILCOX, PH. D., Professor of Greek Language and Literature.

LUCIUS E. SAYRE, B. S., PH. M., Professor of Pharmacy.

LEWIS L. DYCHE,\* M. S., Professor of Systematic Zoölogy.

FRANK W. BLACKMAR, PH. D., Professor of Sociology and Economics.

CHARLES G. DUNLAP, LITT. D., Professor of English Literature.

EDWIN M. HOPKINS, PH. D., Professor of Rhetoric and English Language.

FRANK H. HODDER, PH. M., Professor of American History and Political Science.

ERASMUS HAWORTH, PH. D., Professor of Geology.

ARTHUR T. WALKER, PH. D., Professor of Latin Language and Literature.

WILLIAM C. STEVENS, M. S., Professor of Botany.

WILLIAM A. GRIFFITH, Professor of Drawing.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

JOHN E. BOODIN, PH. D., Professor of Philosophy.

IDA H. HYDE, PH. D., Professor of Physiology.

JAMES NAISMITH, M. D., Professor of Physical Education.

SAMUEL J. HUNTER, A. M., Professor of Entomology.

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\* Absent on leave.

- CLARENCE E. MCCLUNG, PH. D., Professor of Zoölogy.  
CARL L. BECKER, PH. D., Professor of European History.  
FREDERICK E. KESTER, M. E., Professor of Physics.  
EDNA D. DAY, PH. D., Professor of Home Economics.  
HAMILTON P. CADY, PH. D., Professor of Chemistry.  
MERLE THORPE, A. B., Professor of Journalism.  
THOMAS H. BOUGHTON, M. D., Professor of Bacteriology and Pathology.  
EDWARD J. CURRAN, M. D., Professor of Anatomy.  
MILES W. STERLING, A. M., Associate Professor of Greek.  
R. D. O'LEARY, A. B., Associate Professor of Rhetoric.  
HANNAH OLIVER, A. M., Associate Professor of Latin.  
ELMER F. ENGEL, A. M., Associate Professor of German.  
SELDEN L. WHITCOMB,\* A. B., Associate Professor of English Literature.  
MARTIN E. RICE, M. S., Associate Professor of Physics and Electrical Engineering.  
JOHN N. VAN DER VRIES,\* PH. D., Associate Professor of Mathematics.  
FREDERICK H. BILLINGS,\* PH. D., Associate Professor of Botany and Bacteriology.  
DAVID L. PATTERSON, B. S., Associate Professor of History.  
LOUIS E. SISSON, A. M., Associate Professor of Rhetoric.  
CLARENCE A. DYKSTRA, A. B., Associate Professor of History.  
ARTHUR J. BOYNTON, A. M., Associate Professor of Economics.  
CHARLES H. ASHTON, PH. D., Associate Professor of Mathematics.  
ALBERTA L. CORBIN, PH. D., Associate Professor of German.  
WILLIAM O. HAMILTON, A. B., Associate Professor of Physical Education.  
FRANK B. DAINS, PH. D., Associate Professor of Chemistry.  
MARGARET L. JOHNSON, M. D., Associate Professor of Physical Education.  
WILLIAM A. WHITAKER, M. A., Associate Professor of Metallurgy.  
MARGARET LYNN, A. M., Assistant Professor of English.  
EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.  
WILLIAM J. BAUMGARTNER, A. M., Assistant Professor of Zoölogy and Histology.

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\* Absent on leave.

- HENRY O. KRUSE, A. M., Assistant Professor of German.
- ELISE NEUEN SCHWANDER, A. B., Assistant Professor of Romance Languages.
- CHARLES H. GRAY, PH. D., Assistant Professor of English Language.
- LEON N. FLINT, A. B., Assistant Professor of Journalism.
- CLARENCE C. CRAWFORD, PH. D., Assistant Professor of European History.
- EARL W. MURRAY, A. B., Assistant Professor of Latin.
- HENRY L. JACKSON, B. S., Assistant Professor of Chemistry.
- JAMES E. TODD, A. B., Assistant Professor of Geology and Mineralogy.
- JAMES A. CAMPBELL, A. M., Assistant Professor of German.
- WILLIAM S. JOHNSON, PH. D., Assistant Professor of English Literature.
- WILLIAM P. WARD, A. B., Assistant Professor of Romance Languages.
- ROY LEE MOODIE, PH. D., Assistant Professor of Zoölogy.
- DAVID C. ROGERS, PH. D., Assistant Professor of Psychology.
- EDWARD M. BRIGGS, A. M., Assistant Professor of German.
- ALBERT M. STURTEVANT, PH. D., Assistant Professor of German.
- WILLIAM H. TWENHOFEL, A. M., Assistant Professor of Geology.
- ARTHUR L. OWEN, A. M., Assistant Professor of Romance Languages.
- ULYSSES G. MITCHELL, PH. D., Assistant Professor of Mathematics.
- MARION B. WHITE, PH. D., Assistant Professor of Mathematics.
- LULU GARDNER, A. B., Assistant Professor of Rhetoric.
- WILLIAM W. DAVIS, A. M., Assistant Professor of American History and Political Science.
- GERHARD A. GESELL, A. B., Assistant Professor of Public Speaking.
- VICTOR E. HELLEBERG, A. B., Assistant Professor of Sociology.
- CALVERT J. WINTER, PH. B., Assistant Professor of Romance Languages.
- RALPH A. SHERWIN, B. S., Assistant Professor of Physical Education.
- DEWITT C. CROISSANT, PH. D., Assistant Professor of English.
- ARTHUR MITCHELL, PH. D., Assistant Professor of Philosophy.
- FREDERICK A. G. COWPER, A. M., Assistant Professor of Romance Languages.

- GEORGE E. PUTNAM, B. LITT., Assistant Professor of Economics.  
CHESTER H. HEUSER,\* A. M., Assistant Professor of Zoölogy.  
LALIA V. WALLING, A. M., Instructor in Physiology.  
NADINE NOWLIN, A. B., Instructor in Zoölogy.  
CHARLES B. ROOT, Instructor in Physical Education.  
OLIVE M. GILBREATH,† A. M., Instructor in Rhetoric.  
ALICE WINSTON, A. B., Instructor in Rhetoric.  
MARIA L. BENSON, A. B., Instructor in Design and Ceramics.  
ANA JULE ENKE, PH. B., Instructor in Spanish.  
ROSE R. MORGAN, A. M., Instructor in English.  
THEODORE T. SMITH, A. M., Instructor in Physics.  
AMIDA STANTON, A. B., Instructor in Romance Languages.  
CLARENCE A. NASH, A. M., Instructor in Chemistry.  
CLARA P. NEWPORT, PH. D., Instructor in German.  
ALLEN A. SEIPT, PH. D., Instructor in German.  
FLOYD C. DOCKERAY, A. M., Instructor in Psychology.  
GRACE MIRIAM CHARLES, PH. D., Instructor in Botany.  
HELEN G. JONES, PH. B., Instructor in German.  
JEAN MACKINNON, A. B., Instructor in Chemistry.  
MARY L. HUNT, PH. D., Instructor in Rhetoric.  
CLARA F. MCINTYRE, A. M., Instructor in Rhetoric.  
EDWARD L. GRIFFIN, A. B., Instructor in Chemistry.  
AGNES A. ANDERSON, A. M., Assistant in Food Laboratory.  
ROSE ABBOTT, A. B., Instructor in Physical Education.  
HERBERT B. HUNGERFORD, A. B., Instructor in Entomology.  
HORACE GUNTHERP, A. B., Instructor in Zoölogy.  
HAZEL H. MACGREGOR, A. M., Instructor in Mathematics.  
NOBLE P. SHERWOOD, B. S., Instructor in Botany and Bacteriology.  
ALFRED L. NELSON,\* A. B., Instructor in Mathematics.  
RAY D. LINDSEY, A. M., Instructor in Zoölogy.  
JOSEPH W. MURRAY, Instructor in Journalism.  
STANLEY D. WILSON,\* Instructor in Chemistry.  
ORVILLE T. WILSON,\* A. B., Instructor in Mathematics.

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\* Appointed for second semester, 1911-'12.

† Absent on leave.



## COURSES OFFERED IN THE COLLEGE.

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The College offers the courses in literature, science and the arts that provide the so-called liberal education, and leaves in the main the applied sciences and arts to other departments. The regulations governing the work required for entrance and that done during the Freshman and Sophomore years are designed to result in the student's having had a minimum number of courses in the fundamental branches of knowledge, on which he will base his broader and more specialized work in the Junior and Senior years.

## DEGREE CONFERRED.

All graduates of the College receive the degree of bachelor of arts.

## ADMISSION.

There are two methods of admission to the College: First, by examination; second, by certificate.

### 1. BY EXAMINATION.

**TIMES AND PLACE.** Candidates for admission to first-year work in the College, not presenting the required certificates, will be examined at the University, Lawrence, either on Thursday, Friday and Saturday, May 23, 24 and 25, 1912, or on Wednesday, Thursday and Friday, September 18, 19 and 20, 1912. The following is the schedule of examinations:

*Thursday, May 23, or Wednesday, September 18.*

- 9-10. English.
- 10-11. Algebra.
- 11-12. French.
- 1-2. Physical Geography.
- 2-3. German.
- 3-4. Economics.

*Friday, May 24, or Thursday, September 19.*

- 9-10. Geometry.
- 10-11. Latin.
- 11-12. History.
- 2-3. Greek.
- 3-4. Physics.

*Saturday, May 25, or Friday, September 20.*

- 8-9. Botany.
- 9-10. Chemistry.
- 1-2. Zoölogy.
- 2-4. Free-hand Drawing.

Candidates for admission may divide the examination between two years, or between the two examinations of the same year, under the following conditions: The applicant may present himself at the preliminary for examination in any or all of the prescribed subjects, and, if he is successful in five or more subjects, he need not be again examined in them.

*Examinations for advanced standing on work done in preparatory schools, not required for admission, will be held at the same time as entrance examinations.*

## 2. BY CERTIFICATE.

Nearly all students enter the College by certificate from high schools, academies, military schools, or preparatory schools of other colleges and universities, accredited by the University.

The candidate for admission by certificate must present either a certificate of graduation from an accredited preparatory school, or a letter from the principal of such school recommending him for admission without graduation. The certificate should be signed by the principal or other executive officer of the school. Blank certificates will be sent by the Registrar of the University about May 1 of each year to the principal of each accredited school. The certificates of all students expecting to enter the College should be filled out, signed and returned by the principal or superintendent of schools to the Registrar before July 1.

Blank certificates will be sent on application to the Registrar.

### ENTRANCE UNIT.

Preparatory work is estimated in terms of the "entrance unit." A subject like algebra, for example, may be pursued one year, *i. e.*, thirty-five weeks, five recitations a week, with at least forty minutes for each recitation, and the work thus done secures the student one "entrance unit." In computing entrance units it must be noted that the laboratory period should be twice the length of a recitation period.

### NUMBER OF UNITS REQUIRED.

Fifteen units are necessary for unconditional admission to the College. A temporary deficiency, however, of not more than two units will be permitted, but the deficiency in any "group" given below must not exceed one unit.

### MAKING UP DEFICIENCIES.

A student thus conditioned must make good all of his deficiencies during his first year in the University. Work done in making good such deficiencies does not, of course, count as College work.

When deficiencies are made up at the University, a "College unit," *i. e.*, five hours a week for a half-year (one semester), is considered equivalent to an "entrance" (or high-school) "unit," as above defined.

## COLLEGE CREDIT.

*College credit for work done in preparatory schools will be given upon examination only. (See page 109 for times and place of examination.)*

## SUBJECTS FOR ADMISSION.

A total of fifteen units must be offered for entrance. The subjects in which this entrance work may be offered are arranged in seven groups, as follows, the number of units required being also indicated:

GROUP I, English.	English, four units.	Three units are required.
GROUP II, Mathematics.	Elementary algebra, one and one-half units. Plane geometry, one unit. Solid geometry, one-half unit. Plane trigonometry, one-half unit. Advanced algebra, one-half unit.	The elementary algebra and plane geometry are required.
GROUP III, Foreign Languages.	Latin, four units. Greek, three units. German, three units. French, three units.	Of these, three units are required, which must be, first, in Latin, or second, in German.
GROUP IV, Physical Sciences.	Physical geography, one unit, or one-half unit. Physics, one unit. Chemistry, one unit.	One unit is required.
GROUP V, Biological Sciences.	Botany, one unit. Zoölogy, one unit. Physiology, one unit.	One unit is required.
GROUP VI, History.	Greek and Roman, one unit. Mediæval and modern, one unit. English, one unit. American, one unit. Economics, one unit, or one-half unit. Civics, one-half unit.	One unit is required.

GROUP VII, Vocational Subjects.	Woodwork, one unit. Drawing, one unit. Domestic art, one-half unit. Domestic science, one-half unit. Agriculture, one-half unit. Bookkeeping, one-half unit. Commercial law, one-half unit. Commercial geography, one-half unit. Psychology, one-half unit. Methods and management, one-half unit.	One unit only may be offered.
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Of the fifteen units required for entrance, eleven and one-half are prescribed by group; the remaining three and one-half units may be chosen without restriction.

### ENTRANCE SUBJECTS IN DETAIL.

#### ENGLISH.

Four units (three required).

The requirement in English is that recommended by the National Conference on Uniform Entrance Requirements in English, and accepted by all colleges in the United States. Each of the three required units calls for one year of daily recitations in English subjects, in the proportion of three in English literature to two in English composition. For a fourth unit, accredited high schools may offer a fourth year of English, if approved by the High-school Visitor; and the character of this fourth year's work may be determined with reference to the conditions of individual schools. For full details and explanations, see the High-school Manual, No. IX, published by the University and sent to any address upon application.

#### MATHEMATICS.

Four units (two and one-half required).

It is assumed that all candidates for admission to the College are proficient in the practical application of arithmetic. The College recommends that the arithmetic in the upper grades be made more algebraic in character or that some elementary algebra be taught in the grades in place of some of the more abstract topics in arithmetic. It also recommends that concrete geometry, under its own name or under the name of geometrical drawing, be taught in the grades.

The student must offer a minimum of two and one-half units,



and may offer a maximum of four units, in mathematics, in five subjects, as follows:

**ELEMENTARY ALGEBRA.** One and one-half units. The required one and one-half units of algebra must consist of the four fundamental operations of algebra; factoring; determination of highest common factor and lowest common multiple by factoring; fractions; simple equations, both numerical and literal; simultaneous equations, both numerical and literal, containing two and three unknown quantities; radicals, including the extraction of the square root of polynomials and of numbers; exponents, including fractional and negative; quadratic equations, in one and two unknown quantities, both numerical and literal, with applications.

Throughout the course the pupil should be required to solve numerous problems which involve putting questions into equations. Some of these problems should be chosen from mensuration, from physics, and from commercial life. The use of graphical methods and illustrations, particularly in connection with the solution of equations, is also required.

**PLANE GEOMETRY.** One unit. The usual theorems and constructions of good textbooks, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons, and the measurement of the circle. The solution of numerous original exercises, including loci problems, and the application to the mensuration of lines and plane surfaces is strongly insisted on. This unit is required.

**SOLID GEOMETRY.** One-half unit. The usual theorems and constructions of good textbooks, including the relations of planes and lines in space; the properties and measurements of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle; numerous original exercises, including loci problems and applications to the mensuration of surfaces and solids.

**PLANE TRIGONOMETRY.** One-half unit. Definitions and relations of the six trigonometric functions as ratios; circular measurement of angles; proofs of principal formulas, in particular for the sine, cosine and tangent of the sum and difference of two angles, of the double angle and the half angle, the product expressions for the sum or the difference of two sines or of two cosines, etc.; the transformation of trigonometric expressions by means of these formulas; solution of trigonometric equations of a simple character; theory and use of logarithms (without the introduction of work involving infinite series); solution of right and oblique triangles and practical applications. Problems should be solved by the use of tables of natural functions, and also by use of tables of logarithms and logarithmic functions.

**ADVANCED ALGEBRA.** One-half unit. Permutations and combinations, limited to simple cases; complex numbers, with graphic representation of sums and differences; determinants, chiefly of the second, third and fourth orders, including the use of minors and the solution of linear equations; numerical equations of higher degree, and so much of the theory of equations, with

graphic methods, as is necessary for their treatment, including Descartes' rules of signs and Horner's method, but not Sturm's functions or multiple roots.

Most candidates prefer to offer three units of mathematics for entrance; these three units should consist of the two and one-half units of required algebra and plane geometry and one-half unit of solid geometry or plane trigonometry.

As to the order in which the mathematical topics should be taught in the high schools, the following is recommended:

*First Year.* Elementary algebra, including a brief treatment of quadratic equations.

*Second Year.* Plane geometry completed.

*Third Year.* Solid geometry, first half-year; required algebra completed, second half-year.

*Fourth Year.* Plane trigonometry, first half-year; advanced algebra, second half-year.

It is important that students entering the College should come with the algebra fresh in mind. Schools that do not offer the fourth year in mathematics should teach the last third of the required algebra as late as possible in the course.

### LATIN.

One, two, three, or four units.

*First Unit.* Beginner's Book. In all written exercises the long vowels should be marked, and in all oral exercises pains should be taken to make the pronunciation conform to the quantities. Students should be taught from the beginning to read the Latin aloud with intelligent expression.

The important things in this year are: First, a perfect knowledge of the paradigms; second, some practice in reading easy connected passages in preparation for the second year's work.

*Second Unit.* The first four books of Cæsar's Gallic War, or selections from Cæsar equivalent in amount to those books; and the equivalent of one period a week in prose composition. Selections from other prose writers, such as Nepos, may be taken as a substitute for one book of Cæsar, or an equivalent amount may be read in any of the "second-year books," provided at least two books of Cæsar are included.

The important things in this year are: First, a systematic drill on the more common case and mode uses; second, an intelligent comprehension of the matter read. The students should be able to give a good account of any of Cæsar's campaigns.

*Third Unit.* Six orations of Cicero, and the equivalent of one period a week in prose composition. The orations should include the four against Catiline and the Manilian Law. Sallust's Catiline may be substituted for the Manilian Law and a sixth oration.

The important things in this year are: First, a systematic drill in all Ciceronian case and mode uses; second, an intelligent comprehension of the contents of the orations.

*Fourth Unit.* The first six books of Vergil's *Æneid*, and the equivalent of one period a week in prose composition. An equivalent amount of Ovid may be substituted for part of the Vergil.

The important things in this year are: First, an intelligent appreciation of Vergil's story and art; second, a training in reading the meter which will allow the student to read the Latin metrically with ease and expression; third, a study of the mythology. If the work of the first three years has been done well, syntactical drill should be confined almost wholly to the period devoted to prose composition.

*Note.*—When only three units are presented, it is preferred that they be the first, second, and third; but the first, second, and fourth will be accepted. No combination of Cicero and Vergil will be accepted as a unit.

*Latin Prose Composition.* It will be noticed that prose composition is required throughout the last three years. One period a week may be devoted to it, or a smaller amount may be given each day. Such books as Bennett's and Jones's are recommended as giving the more systematic drill, but they should be supplemented by the occasional dictation of connected passages based on the text read. Such books as Daniell's and Moulton's will be accepted, but they need to be supplemented by a systematic study of the grammar. D'Ooge's *Latin Composition* is also good. If the book chosen does not give sufficient material for work in connection with Vergil, Nutting's *Supplementary Latin Composition* is recommended.

## GREEK.

One, two, or three units.

*First Unit.* Elementary Greek. White's *First Greek Book* or Gleason's *Greek Primer*, or an equivalent. Thorough mastery of declensions and conjugations, and the main ideas of syntax. Xenophon's *Anabasis* begun, and twenty to thirty pages read. Goodwin's, Babbitt's or Goodell's *Greek Grammar*.

*Second Unit.* Xenophon's *Anabasis* continued into or through the fourth book, or an equivalent amount of other Attic prose. Review of inflections. Systematic study of syntax in the grammar. Practice in writing Greek based on the text read. Constant training in sight reading.

*Third Unit.* Homer's *Iliad* or *Odyssey*, five or six books, exclusive of the *Catalogue of Ships*. Constant practice in reading at sight. Special attention to Homeric forms, vocabulary, and scansion. Attic prose composition once a week. Benner's *Selections from Homer's Iliad*. Perrin and Seymour's *School Odyssey*.

## GERMAN.

One, two, or three units.

*First Unit.* The elements of grammar (the first eighteen lessons of Carruth's *Otis's Essentials of German Grammar*), including: (1) Careful drill in pronunciation; (2) familiarity with



German script and text; (3) the memorizing of paradigms; (4) the writing, correction, memorizing and reciting after correction of all the English-German exercises in one of these grammars; (5) colloquial exercises daily to illustrate and fix the principles and the vocabulary introduced; (6) the memorizing of 100 lines of good German (popular songs or narrative prose). One half year.

The reading and translation of about seventy-five pages of simple German (as in Carruth, Hewett, Joynes-Meissner Readers). This reading should involve the reading aloud of the German, the rendering into good idiomatic English, and question and answer in German upon what is read. Word-for-word translation should not be permitted, save when necessary to show the precise force of an idiom. One half-year.

The above work will require, if properly done, five forty-five-minute periods weekly for thirty-five weeks. A wise plan is to begin with the grammar and carry this continuously for five or six weeks. Then introduce the reader; at first, one lesson a week, and then, after ten or twelve weeks, increasing the number of lessons from the reader until the grammar lessons have been completely and thoroughly reviewed.

*Second Unit.* Additional study of grammar, directed to the details of case government, use of the modal auxiliaries, of the subjunctive, and of word order. (The equivalent of lessons XIX to XXIV in Carruth's Otis's Essentials.) Practice in writing German from dictation, at least eighteen exercises (one a week for a half-year, to occupy fifteen to twenty minutes each).

Reading and translation of 100 pages of connected prose and of Schiller's Wilhelm Tell, complete. The 100 pages of prose may be made up from the remainder of Carruth's or Hewett's Reader, together with Zshokke's Der zerbrochene Krug, Heyse's Die Blinden or Anfang und Ende, Storm's Immensee, Andersen's Maerchen, Grimm's Maerchen.

*Third Unit.* Review of grammar, and the completion of Carruth's Otis, lessons XXV to XXX, with drill on the less usual strong verbs and on the idioms of tense and order. Composition work, consisting chiefly of paraphrases of the German used for translation.

Reading of 400 pages of standard German, with careful translation and critical understanding. (Some portion of what is translated should always be read aloud in German.) Suitable works are: Freytag's Die Journalisten and Lessing's Minna von Barnhelm; Fouque's Undine; Hauff's Das kalte Herz; Schiller's Der dreissigjaehrige Krieg; Freytag's Doktor Luther; Riehl's Burg Neideck; Goethe's Hermann und Dorothea.

## FRENCH.

One, two, or three units.

*First Unit.* Rudiments of grammar; conjugation of the regular and the more usual irregular verbs; moods and tenses; use and position of pronouns; partitive constructions. Careful drill



in pronunciation. Reading of 100 pages of easy prose. Practice in writing and speaking very simple sentences.

*Second Unit.* All the essentials of accidence and syntax. Composition. Frequent dictation. Oral exercises. Reading of 300 to 350 pages of modern French.

*Third Unit.* Thorough review of grammar. Written exercises based upon grammatical points, and connected writing. Dictation. Practice in hearing and speaking French. Reading of 600 pages of fairly difficult modern French.

### PHYSICAL GEOGRAPHY.

One unit, or one-half unit.

The course in physical geography should include a study of the following subjects:

1. The earth as a globe; shape of the earth, how proved; size, how measured; motions, how determined; map making; different modes of projection.

2. The ocean; forms and divisions; depth, density, temperature; ocean movements, waves and currents; character of ocean floor; life in ocean; tides, character and causes; shore lines.

3. The atmosphere; chemical composition, and how determined; pressure of, and how determined; circulation of, character and causes; storms, classification of, and cause.

4. Land, amount and distribution of; topographic charts; plains, kinds of, and development of; plateaus, kinds of, and development of; volcanoes, distribution and character of; rivers, life history of; glaciers, kinds and characteristics of.

### PHYSICS.

One unit.

The candidate's preparation in physics should include:

1. Recitations on at least one standard text, such as Carhart's High School Physics or Hoadley's A Brief Course in Physics.

2. Experimental work, consisting of lecture-table demonstrations and individual laboratory work. The latter should comprise at least thirty exercises selected from such lists as are given in the University High-school Manual or in a good laboratory manual, such as that by Chester-Dean-Timmermann or that by Coleman.

### CHEMISTRY.

One unit.

Preparatory work in this subject should cover practically the work done in course I in the University, and should give the student a good knowledge of (1) modern chemistry theories; (2) the most important facts of chemical science; (3) the practical applications of chemistry to every-day life and to the useful arts. It is important that elementary physics be thoroughly understood before taking up the study of chemistry. About two-fifths of the time devoted to chemistry should be spent in actual labora-

tory work by the students individually, as adequate training and preparation are not given merely by the instructor's performing experiments in the presence of the class. Sufficient attention should be paid to the arithmetic of chemistry so that the students will acquire facility in the handling of the simpler chemical problems. Any good textbook, such as Descriptive Chemistry, by Newell, Essentials of Chemistry, by Brownlee and others, Elementary Study of Chemistry, by McPherson and Henderson, or the state text by Hessler and Smith, may be used. Some of the abridged textbooks are too elementary to fulfill the requirements of the University.

### BOTANY.

One unit.

A unit's course in botany should essentially follow the outline recommended in the Proceedings of the Seventh Annual Meeting of the North Central Association of Colleges and Secondary Schools. Detailed directions for such a course are given in Ganong's *The Teaching Botanist*, Stevens's *Introduction to Botany*, and Bergen's *Foundations of Botany*. Not less than two-thirds of the time should be devoted to laboratory work, and the remainder to recitations and discussions. Field excursions should be made, so that the students may know in their natural surroundings the plants already studied in the laboratory. Careful drawings and notes should be required in connection with the laboratory work.

### ZOOLOGY.

One unit.

Acceptable work in zoölogy must be of such a character that at least two-thirds of the time is spent in individual study of type specimens. The value of the study rests in the training given in independent observation and correlation of facts, and in the accurate recording of these facts by drawings and notes. Comparative work is of the greatest importance. The arthropods are the best group in Kansas upon which to work, and it is suggested that they be used to exemplify the general principles of structural relations and classification. For a laboratory guide, Marshall and Hurst's *Practical Zoölogy* is recommended, and as a textbook, Parker and Haswell's *Manual of Zoölogy*. Where much of the time is devoted to the study of insects, Hunter's *Elementary Studies in Insect Life* may be used as a guide, and Comstock's *Manual of Entomology* and Weed's *Life Histories of American Insects* as reference books.

### PHYSIOLOGY.

One unit.

In presenting this subject, about one-half of the time should be employed in laboratory work and the remainder in recitations. To insure the best results and to cultivate the power of observation and expression, neat and correct drawings, properly labeled

and accompanied by intelligent notes, should be made of each subject, demonstration or experiment studied.

Martin's Human Body (briefer course) or Colton's Experimental and Descriptive Physiology are recommended as textbooks.

### GREEK AND ROMAN HISTORY.

One unit.

If four years of history are offered in the high school, it is recommended that Greek and Roman history, with some preliminary study of the earlier nations, be given in the first year; otherwise, as early as possible. In selecting a text the teacher will do well to examine Morey, West's Ancient World, Wulfson, Myers, and Bostford.

### MEDIÆVAL AND MODERN EUROPEAN HISTORY.

One unit.

This should, if possible, succeed the course in ancient history, and precede that in English history. If English history is not offered separately, some special stress may be laid upon it in this course. Many excellent textbooks have recently appeared on this subject. Among these are Munroe and Whitcomb, Bourne, West, Myers, and Robinson.

### ENGLISH HISTORY.

One unit.

In a four-year course English history should be offered in the third year; otherwise, it should, at any rate, precede American history. There are numerous textbooks on the subject. Besides that recommended for state use, Channing and Higginson, there are Corman and Kendall, Walker, Cheyney, Wrong, Larned, Montgomery and Andrews.

*Note.*—In the three courses above attention should be given to geography, some outside reading, and the taking of notes. The use of outline maps to be filled in by the students is especially recommended. In all good textbooks will be found lists of reference books desirable for a school library. The Report of the Committee of Seven should also be consulted. But the department does not urge that the division between ancient and mediæval history be fixed at 800 A. D.

### AMERICAN HISTORY.

One unit.

The experience of teachers has proved that it is better to devote an entire year to American history than to attempt the combination of civics and history recommended by the Committee of Seven. In order to receive entrance credit, the course must not be given before the third year in the high school, and, unless library facilities are exceptional, should be based upon some such approved text as Channing's Student's History, McLaughlin's American Nation, or Hart's Essentials. The use of Hodder's Outline Maps, published by Ginn & Co., is recommended.

## ECONOMICS.

One unit or one-half unit.

The general principles of economic science, with some of its applications. The instructor, as far as possible, should approach the subject from the concrete rather than from the abstract, and should verify every principle by practical examples. Blackmar's Economics for High Schools (or its equivalent) should be used as a text and guide. Special attention should be given to books II and III. In case one-half unit of entrance credit is desired, books I and II should be emphasized, and book III, on Public Economics, should be omitted.

A limited amount of collateral reading should be required, and easy investigations of local economic conditions are advised.

## CIVICS.

One-half unit.

In response to urgent requests from many teachers, the College is prepared to give entrance credit of a half unit for civics. The work should include a knowledge of the form and functions of the national government and of state and local government in Kansas. The study should be based on some approved text like Boynton's School Civics.

## COMMERCIAL GEOGRAPHY.

One-half unit.

Time, eighteen weeks. The work should cover the following topics: (1) The effect of the surface, soil, climate, etc., on commerce; (2) the influence of race, religion, education, commercial policies, etc., on commerce; (3) the effect of economic forces on production and commerce; (4) means of transportation and communication. These topics should be worked out in relation to the United States, first in sections, then as a whole. This ground is covered by any good text, which should be supplemented by map work and assigned readings.

## VOCATIONAL SUBJECTS.

The subjects under this heading for which credit will be given are enumerated in group VII. One credit each will be given for wood work and drawing, and one-half credit for each of the other subjects in the group.

Credits for above units and half units is conditioned on these units being defined by the Faculty of the College of Liberal Arts and Sciences, and entrance credit for the same will be given to the graduates of only such schools as are reported by the High-school Visitor to be fully complying with these standards.

Definitions and outlines will be published in the High-school Manual, and will be furnished upon request.



## ADMISSION TO ADVANCED STANDING.

The regulations governing admission to advanced standing in the College are administered by a committee of the Faculty, which examines into the merits of each case presented to it, and either credits the applicant with a certain rank or recommends him to the heads of departments for advanced credit or examination.

*Application for such advanced standing must be made at the time of matriculation.*

*Undergraduates from other colleges must present certificates of honorable dismissal, or other satisfactory evidence of good character.*

Some requirements of the College are indicated as follows:

I. BY EXAMINATION. A candidate may be admitted to the Sophomore, Junior or Senior class, if he appears on examination to be prepared in the following studies: (1) In the studies required for admission to the Freshman class. (2) In all such studies as he would have pursued if he had entered at the beginning of the course.

*All applications for examination for advanced standing must be made during the opening week of the first term. College credit will be given for work done in preparatory schools upon examination only. The times and place of such examinations are the same as listed on page 109.*

II. WITHOUT COMPLETE EXAMINATION. Graduates or students from the higher classes of other colleges may be admitted to advanced standing upon presentation of a certificate stating in detail the work done, under such conditions as the Faculty may determine to be just in each case, upon consideration of the applicant's previous course of study and of the evidence he presents of his proficiency in that course.

It is required of all candidates for the bachelor's degree who have entered the College on advanced standing from other colleges that they do not less than thirty hours of Junior or Senior work in residence at the University.

Students leaving the College before obtaining the bachelor's degree, who have spent three full years in residence at the College, and lack but fifteen hours of graduation, may receive not to exceed fifteen hours' credit from an institution of equal standing, provided they receive the bachelor's degree or a higher degree from such institution.

## UNCLASSED STUDENTS.

Opportunity is given in the College for the admission of persons of mature years who desire to pursue some special line of work, without following any prescribed course or becoming candidates for a degree.

The admission of such unclassified students is directly under the control of a committee of the Faculty, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for classification as unclassified students must present

certificates from preparatory school, showing the completion of fifteen preparatory units, or must have attained the age of twenty-one years and give satisfactory evidence of proper preparation for the studies desired, and must also meet such other requirements as may be fixed by the Faculty.

## REGISTRATION.

All candidates for admission having certificates from accredited schools and all students of the College intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 18 to 20, 1912. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay.

## ENROLLMENT.

After registration has been completed with the Registrar and fees have been paid to the University Secretary, students should apply to the Dean of the College for enrollment in their classes. Enrollment for the first semester occurs September 18, 19 and 20, 1912, and for the second semester during the ten days preceding the Christmas holiday vacation.

Each student is assigned to a member of the Faculty as his personal adviser, who will assist him in his selection of courses, the arrangement of his schedule, and any other matters upon which he may need assistance or advice. The Faculty adviser is the assistant and representative of the Dean of the College, who is charged with the execution of all rules relating to enrollment. Application for enrollment submitted at any other time than the dates above given will not be received unless accompanied by a satisfactory reason for the request.

**COMPLETION OF REQUIREMENTS.** A student may not be enrolled in any subject in advance of any other which he has yet to take, and which it is possible for him to carry at the time.

**FAILURES AND CONDITIONS.** Whenever the record of a student shows that he has failed in a course, or if he has received a condition which has not been removed during the previous semester, he must reënroll in the course, providing it appears in the schedule. First-year students having entrance deficiencies must enroll in courses to make good such deficiencies.

## EXAMINATIONS AND REPORTS.

**FINAL EXAMINATIONS** are held for all students during the last week of each semester.

**SPECIAL EXAMINATIONS** will be given only during examination weeks and during the opening week of the fall semester. All requests for special examinations must be approved by the Dean.

**DISMISSAL.** Absence from examination or failure in more than one-third of his work, in any one semester, severs a student's connection with the University.

**WITHDRAWALS.** A student may be withdrawn from a class by the Dean, with the consent of his instructor. Honorable withdrawal will be permitted only when the student's work in the course is of passing grade.

Whenever a student is failing in part of his work the Dean may, at his discretion, withdraw him from one or more of the classes in which he is failing and give him a failure in such courses.

**NOT EXAMINED.** A student who fails to appear for final examination, but whose class standing has been of passing grade, will be reported as "not examined." If his class standing is below passing he will be reported as "failed."

**GRADE ONE** is used to indicate that the work of the student has been excellent in quality and performed with marked fidelity and decided interest.

**GRADE TWO** is used to indicate that the work of the student has been good and his application reasonable.

**GRADE THREE** is used to indicate that the work of the student has been fair and that his attainments are at least sufficient to prepare him to pursue the succeeding courses in the department or courses in other departments in any way dependent upon the course graded.

**CONDITIONS.** A student may be conditioned in a course if the quality of his work has been of passing grade and some portion of the work is for good reason unfinished. A condition may be made good by special examination, but unless properly removed before the beginning of the same semester of the following year the condition becomes a failure and the student must reënroll for the course.

**FAILURES.** Any student who has not met the requirements for at least a grade three or "condition" must be marked as "not examined" or "failed." A failure may be removed only by reënrollment in the course.

**INADEQUATE PREPARATION.** When students show by their current work insufficient entrance preparation in any study they may be required to make good such deficiency in any manner prescribed by their instructors.

## SCHOLARSHIPS.

The following scholarships are offered to students in College:

1. The Lucinda Smith Buchan Memorial Scholarship. Established by the alumnæ members of the Pi Beta Phi sorority. A loan of \$200 for two years without interest. Open to young women of the Junior and Senior classes of the College. Miss Daisy Fretz, of Pratt, Kan., held the scholarship for 1911-'12.

2. The Marcella Howland Memorial Scholarship. Sixty dollars a year. Open to young women of the Junior and Senior classes of the College. Held in 1911-'12 by Miss Inez F. Smith, of Lawrence, Kan.

3. The Frances Schlegel Carruth Scholarship in German.

A Freshman scholarship of \$100, in memory of Frances Schlegel, for eight years professor of modern languages in the University of Kansas. Given to the graduate of the Lawrence high school who passes the best examination in two-years entrance German. Held in 1911-'12 by Albert C. Ross, of Lawrence, Kan.

4. A research table in the Marine Biological Laboratory, at Woods Hole, Mass., supported by Mrs. Sara T. D. Robinson. Open to women of the University who have specialized in the sciences and given evidence that they are fitted to make the best use of it. Held in 1911-'12 by Miss Ruth G. Spray, of Lawrence, Kan.

5. The Women Student Government Scholarships. Three of \$100 each. Only one held in 1911-'12, by Miss Viva H. McKenzie, of Lawrence, Kan.

6. The Eliza Matheson Memorial Scholarship of \$100, open to women students of the College above the Freshman year, or to women students in the Graduate School. Held in 1911-'12 by Miss Lucy H. Huff, of Chapman, Kan.

7. The Charles S. Griffin Memorial Scholarship for young men of the Sophomore class of the College. Held in 1911-'12 by Emmett L. Bennett, of Plains, Kan.

8. Aid Fund for Women Students. A fund established for the assistance of worthy women students. Held in 1911-'12 by Miss Leotos Lantz, of Lawrence, Kan., and Miss Florence Wingert, of Kansas City, Mo.

#### PRIZE ESSAYS IN APPLIED CHRISTIANITY.

Four prizes are offered for the best essays in the application of the teachings and example of Christ by the individual and by society to the problems of modern life. The prizes are as follows: First prize, \$100.00; second prize, \$75.00; third prize, \$50.00; fourth prize, \$25.00. The essay winning the first prize is also to be printed at the expense of the University, if thus recommended by the committee. Essays must be submitted by May 15th, and the award is made by a committee of five outside the Faculty.

#### MEMORIAL FUND.

May Sexton Agnew Memorial Fund. A fund of \$500 has been given the library of the University by the Kappa chapter of Kappa Alpha Theta fraternity. The income of this fund is to be devoted to the purchase of books in English literature.

#### FEES AND EXPENSES.

For information regarding fees and expenses in The College, see page 130 of this catalogue.



## PROGRAM OF STUDIES IN THE COLLEGE.

Leading to the Degree of Bachelor of Arts.

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## WORK REQUIRED FOR GRADUATION.

In order to receive the degree of bachelor of arts from the College of Liberal Arts and Sciences, a student must satisfy the following requirements: He must complete 120 hours of class work; in the first term of his Freshman year he must spend two hours a week in the gymnasium, in the second term, three hours a week, and throughout his Sophomore year, two hours a week; and in the first term of his Freshman year he must attend a weekly lecture in hygiene.

## REGULATIONS GOVERNING THE ELECTION OF COURSES.

The courses from which the candidate for the degree must make his selection are listed on page 130 *et seq.* of this catalogue. They are divided into nine groups, according to the departments by which they are given. These groups are as follows:

## GROUPS OF DEPARTMENTS OFFERING COURSES IN THE COLLEGE.

<i>Group.</i>	<i>Department.</i>
I. English.	English language and literature. Journalism. Public speaking.
II. Ancient Language.	Greek language and literature. Latin language and literature.
III. Modern Language.	Germanic languages and literatures. Romance languages and literatures.
IV. Mathematics.	Mathematics.
V. Physical Science.	Chemistry. Physics and astronomy. Geology and mineralogy.
VI. Biological Science.	Botany. Zoölogy. Entomology. Physiology. Anatomy.
VII. History.	History and political science. Sociology. Economics.

<i>Group.</i>	<i>Department.</i>
VIII. Philosophy.	Philosophy. Design. Music.
IX. Miscellaneous.	Home economics. Physical education.
X. Professional.	Law (fifteen hours, open to College Seniors). Medicine (twenty-five hours, open to College Seniors). Engineering (fifteen hours, open to College students). Education (fifteen hours, open to College Juniors and Seniors).

In the choice of courses from these groups the student must conform to the following regulations:

### FRESHMAN-SOPHOMORE REQUIREMENTS.

Before the beginning of the Junior year the student must have completed sixty hours, chosen from the list of courses open to Freshmen and Sophomores in accordance with the following regulations:

1. At least five hours must be taken from each of six groups.
2. Not more than twenty hours may be taken in one department.
3. Rhetoric, five hours, must be taken by all Freshmen not offering it as a fourth year of entrance English. Credits for rhetoric are given provisionally. (See announcement of the course.)

### MAJOR COURSE.

Before graduation the student must complete a major course of not less than thirty hours nor more than sixty hours in one group. Not less than twenty hours nor more than forty hours of his major course may be taken in one department. Notice of the major group chosen must be filed with the Dean at the beginning of the Junior year.

### FREE ELECTIVES.

The work required for graduation not included in the major course is to be chosen subject to the restriction that not more than thirty hours may be elected in one group.

### NUMBER OF HOURS PERMITTED IN ONE GROUP AT ONE TIME.

Not more than ten hours may be carried in one group at one time.

## DUPLICATION OF SUBJECTS.

A course may not be chosen which substantially duplicates work for which credit has already been granted, either in the College or the preparatory school.

## RESPONSIBILITY.

The individual student will be held responsible for the election of his courses in conformity with the preceding regulations.

## AMOUNT OF WORK TO BE CARRIED AT ONE TIME.

Students of the College must be enrolled in not less than fourteen nor more than eighteen hours of work, but all applications for enrollment are subject to the approval of the Dean.

When the past record or current work of a student indicates that he is unable to carry advantageously the amount of work permitted by the above regulation, he may be limited in his enrollment to such extent as may be considered advisable in his case.

The Faculty urges students to confine themselves to the average number of fifteen hours of class work, and thus devote four full years to the completion of their undergraduate work. Experience has shown that the crowding of the undergraduate course results in serious loss in the quality of the work accomplished.

## COLLEGE CREDIT FOR PROFESSIONAL COURSES.

Juniors and Seniors in the College are permitted to enroll in certain courses offered in the professional schools and count the credit received for such work towards the bachelor of arts degree, *but no student is permitted to offer credit from more than one professional school.* The amount of credit that may be thus used is subject to the limitations indicated below. Students desiring to avail themselves of this opportunity must register in the professional school as well as the College, but in enrollment the regulations of the College Faculty governing quantity and character of courses elected must be observed.

## SCHOOL OF MEDICINE.

Juniors and Seniors in the College may offer twenty-five hours from the curriculum of the School of Medicine not included in the courses which are also offered in the College.

## SCHOOL OF LAW.

Seniors in the College may offer fifteen hours from the first year of the curriculum of the School of Law.

## SCHOOL OF EDUCATION.

Juniors and Seniors in the College may be enrolled in not to exceed fifteen hours of work in the School of Education.

## SCHOOL OF ENGINEERING.

A maximum of fifteen hours may be elected by the College student from courses offered in the School of Engineering.

## COURSES OPEN TO FRESHMEN AND SOPHOMORES.

<b>Group I.</b>  <b>English.</b>	<b>ENGLISH LANGUAGE AND LITERATURE.</b>	<b>FIRST SEMESTER:</b> Nos. 1*, 10, 12a*, 12b*, 14*. <b>SECOND SEMESTER:</b> Nos. 2*, 11, 13a*, 13b*, 15*.
	<b>JOURNALISM.</b>	<b>FIRST SEMESTER:</b> No. 1*. <b>SECOND SEMESTER:</b> No. 2*.
	<b>PUBLIC SPEAKING.</b>	<b>FIRST SEMESTER:</b> No. 1*. <b>SECOND SEMESTER:</b> No. 2*.
<b>Group II.</b>  <b>Ancient Language and Literature.</b>	<b>GREEK LANGUAGE AND LITERATURE.</b>	<b>FIRST SEMESTER:</b> Nos. 1, 3, 4, 7, 8, 13, 14. <b>SECOND SEMESTER:</b> Nos. 2, 5, 6, 9, 10, 11, 12, 15.
	<b>LATIN LANGUAGE AND LITERATURE.</b>	<b>FIRST SEMESTER:</b> Nos. 1, 3, 4, 5, 6, 8, 9. <b>SECOND SEMESTER:</b> Nos. 2, 3, 4, 5, 6, 7, 10, 11, 12.
<b>Group III.</b>  <b>Modern Language.</b>	<b>GERMANIC LANGUAGES AND LITERATURES.</b>	<b>FIRST SEMESTER:</b> Nos. 1, 2, 3, 4, 5a, 6, 8, 11, 12. <b>SECOND SEMESTER:</b> Nos. 1, 2, 3, 4, 5a, 5b, 7, 9, 10, 13.
	<b>ROMANCE LANGUAGES AND LITERATURES.</b>	<b>FIRST SEMESTER:</b> French, 1, 2, 3, 4, 5, 8, 9, 10. Spanish, 1, 2, 3, 4, 5. Italian, 1, 3. <b>SECOND SEMESTER:</b> French, 1, 2, 3, 4, 5, 6, 7, 11. Spanish, 1, 2, 6. Italian, 2, 4.
<b>Group IV.</b>  <b>Mathematics.</b>	<b>MATHEMATICS.</b>	<b>FIRST SEMESTER:</b> Nos. 2, 3, 4, 5, 6, 7, 10*, 11*. <b>SECOND SEMESTER:</b> Nos. 1, 2, 3, 4, 5, 6, 7, 8*, 9*.
<b>Group V.</b>  <b>Physical Science.</b>	<b>CHEMISTRY.</b>	<b>FIRST SEMESTER:</b> Nos. 1, 2, 4*. <b>SECOND SEMESTER:</b> Nos. 1, 3*, 4*.
	<b>PHYSICS.</b>	<b>FIRST SEMESTER:</b> Nos. 6a, 6b. <b>SECOND SEMESTER:</b> Nos. 1, 5a, 5b.
	<b>GEOLOGY AND MINERALOGY.</b>	<b>FIRST SEMESTER:</b> No. 1*. <b>SECOND SEMESTER:</b> Nos. 1*, 2*.



## COURSES OPEN TO FRESHMEN AND SOPHOMORES.

<b>Group VI.</b> <b>Biological Science.</b>	<b>BOTANY.</b>	FIRST SEMESTER: Nos. 2, 4*. SECOND SEMESTER: Nos. 1, 3.
	<b>ZOOLOGY.</b>	FIRST SEMESTER: No. 1. SECOND SEMESTER: Nos. 2, 3.
	<b>PHYSIOLOGY.</b>	FIRST SEMESTER: No. 1. SECOND SEMESTER: Nos. 1, 2*.
<b>Group VII.</b> <b>History.</b>	<b>HISTORY AND POLITICAL SCIENCE.</b>	FIRST SEMESTER: Nos. 1, 3, 5a, 5b, 7*, 9a, 9b. SECOND SEMESTER: Nos. 2, 4, 6a, 6b, 8*, 10a, 10b.  FIRST SEMESTER: No. 1*. SECOND SEMESTER: No. 1*.
	<b>ECONOMICS.</b>	FIRST SEMESTER: Nos. 1, 2*. SECOND SEMESTER: Nos. 1, 3*.
<b>Group VIII.</b> <b>Philosophy.</b>	<b>PHILOSOPHY.</b>	FIRST SEMESTER: Nos. 1*, 2*, 3*, 4*. SECOND SEMESTER: Nos. 1*, 2*, 3*, 4*.

\*\* Required of Freshmen.

\* Reserved for Sophomores.

## PRELIMINARY EXPLANATION.

## NUMBERS OF COURSES.

Courses with numbers from 1 to 49 are open to Freshmen and Sophomores: courses marked with an asterisk (\*) are reserved for Sophomores; courses marked with a double asterisk (\*\*) are required of Freshmen.

Courses with numbers from 50 to 99 are open to Juniors and Seniors on the conditions stated in each case. Many of these courses are also open to graduate students; these are listed under the "Graduate School," with the same numbers increased by 100. See pages 72 *et seq.*

## DAYS OF MEETING.

Courses giving five hours' credit meet daily from Monday to Friday, inclusive.

Three-hour courses meet on Monday, Wednesday and Friday unless otherwise specified.

Two-hour courses meet on Tuesday and Thursday unless otherwise specified.

## DESCRIPTION OF COURSES IN THE COLLEGE.

## ANATOMY.

Professor SUDLER.  
Professor CURRAN.  
Doctor SMITH.

**EQUIPMENT.**—The department occupies the lower floor of the Natural History Museum Building. The dissecting rooms are well lighted and comfortable. A reference library, models and specimens are provided. Students are furnished with a skeleton and well-preserved dissecting material, for which a fee is charged covering the actual cost of the material consumed. They are expected to furnish dissecting instruments and two gowns for use in the dissecting room.

**53.—NEUROLOGY.** Five hours, first semester, 8 to 12:15. A study of the gross anatomy of the cord and brain by means of dissections, models and slides. Doctor Curran.

## ASTRONOMY. (See Physics.)

## BOTANY.

Professor STEVENS.  
Associate Professor BILLINGS.  
Assistant Professor STERLING.  
Miss CHARLES, Instructor.  
Mr. SHERWOOD, Assistant Instructor.  
Miss GREENFIELD, Fellow.

**EQUIPMENT.**—The department is provided with laboratories and essential working appliances for general morphology, plant histology, systematic botany, herbarium, plant physiology, and bacteriology. The equipment embraces microtomes, paraffin baths, etc., for histological work, simple and compound microscopes for each student, individual sets of apparatus for physiological experiments, and apparatus for carrying on bacteriological research according to the best methods. In connection with the laboratory for plant physiology is a workroom supplied with tools and machinery for the construction of apparatus as needed. There is a departmental library, in which are at hand the books of reference needed by the students in connection with their laboratory work, and the leading botanical periodicals.

**ADVICE AS TO CHOICE OF COURSES.**—Courses 1 or 3, or their equivalent in other schools, are prerequisites to all other courses in botany. Course 1 affords an introduction to the general field of botany. Students who enter the University with less than a high school year in botany should consult with the department about the best first course in botany following their high school preparation. Students who have completed a high school year in botany may not take course 1 for credit, for they are supposed to have covered the ground of this course at the high school,

and to be prepared to enter courses 2, 3 and 52, which are elementary in their several fields. The student should take course 3 following course 1 or its high school equivalent, if he wishes to get an intimate acquaintance with the morphology and life histories of the different groups of plants, from the lowest to the highest; or course 2, if he wants to acquire histological technique and to understand the cellular structure of plants and how plants are equipped to perform their physiological functions, and to prepare himself for plant physiology in course 51, or course 52, if he desires, first of all, to broaden his knowledge of the morphology and systemy of the flowering plants. If, after course 1, the student wishes to elect two courses that would best enrich his general information about plants, courses 2 and 3 should be chosen. If a basis for a knowledge of sanitation is desired, course 3, 55 or 56 should be selected. Courses 1, 2, 3, 51 and 52 are fundamental to scientific plant culture. Students who are preparing to teach botany in high schools should take courses 1, 2, 3, 51, 52 and 55.

FOR UNDERGRADUATES ONLY.

1.—ELEMENTARY BOTANY. Five hours, second semester, 1:30 to 3:30. An introduction to the forms and parts of plants, and the way typical plants perform their functions and conform to their environment. This course or course 3, or the equivalent in other schools, is a prerequisite to all succeeding courses in botany. Laboratory work ten hours a week, reading, recitations, and lectures. Professor Stevens and Assistant Professor Sterling.

2.—PLANT HISTOLOGY. Five hours, first semester, 8 to 10:15. A study of plant tissues, with special reference to their development and functions; plant products, their origin and physiological and biological significance; histological technique. Laboratory work ten hours a week, recitations and lectures. Prerequisite, course 1. Professor Stevens.

3.—GENERAL MORPHOLOGY OF PLANTS. Five hours, second semester, daily, 10:15 to 12:15. Laboratory work ten hours a week, lectures and recitations, 1:30 to 3:30. Structure and reproduction of plants from the standpoint of evolution. Miss Charles.

4.—GENERAL BACTERIOLOGY. Five hours, first semester, 10:15 to 12:15. The course is designed to lay a foundation in the principles underlying the study of microorganisms. It deals with the preparation of media, cultural and staining methods, diagnostic tests, and the examination of bacteria that have a more or less intimate relation to every-day life. It is intended to meet the requirements of students desiring biological work with a distinct practical trend, and of those studying home economics. Prerequisites, botany 2 or 3; or zoölogy 2; or any College course in which a knowledge of microscopical methods is obtained. Associate Professor Billings and Mr. Sherwood.

51.—EXPERIMENTAL PLANT PHYSIOLOGY. Five hours, second semester, 10:15 to 12:15, or by appointment. Laboratory work ten hours a week, reading and conferences. Prerequisite, course 2. Professor Stevens.

52.—TAXONOMY OF PHANEROGAMS. Five hours, first semester, 8 to 10. Classification of flowering plants, with special attention to the local flora. Laboratory and field work ten hours a week. Prerequisite, course 1. Miss Charles.

53.—MORPHOLOGY OF FUNGI. Three hours, first semester, 10:15 to 12:15. Lectures, with laboratory work six hours a week. Structure and reproduction of fungi, with special attention to species causing damage to crops. Prerequisite, course 3. Miss Charles.

54.—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. By appointment, five hours, first or second semester, or both. A study of the forms and structure of plant members under varying environment. Laboratory work, field work and reading. Professor Stevens.

55.—PROBLEMS IN BACTERIOLOGY. By appointment, three, four or ten hours, each semester. Advanced laboratory work, with readings along special lines or original investigation with preparation of a thesis. Open to advanced undergraduates who are prepared for it. Associate Professor Billings.

56.—DAIRY BACTERIOLOGY AND WATER ANALYSIS. Three hours, second semester, 1:30 to 3:30. Laboratory work, with recitations, six hours a week. (a) Relation of bacteria to milk and its products. Milk testing. (b) Bacteriological examination of water. Prerequisite, course 4. Associate Professor Billings and Mr. Sherwood.

57.—DOMESTICATED PLANTS. Two hours, first semester, 3:30 to 4:30, or by appointment. The origin and amelioration of cultivated plants, and the bearing of the results of plant breeding on the problem of evolution. Prerequisite, course 1. Professor Stevens.

58.—SPECIAL MORPHOLOGY OF BRYOPHYTES AND PTERIDOPHYTES. Three hours, both semesters, 8 to 10, or by appointment. A comparative study of the development of the plants of the groups. Prerequisite, course 3. Miss Charles.

59.—SPECIAL MORPHOLOGY OF THALLOPHYTES. Three, five or ten hours a week, by appointment. Advanced work in special groups of the lower organisms. Miss Charles.

70.—ORGANIC EVOLUTION. Three hours, second semester, at 9. This course will present the theory of evolution historically and in the light of recent important evidence derived from observation and experiment. Lectures, collateral reading and recitations. Professor Stevens and Professor McClung.



## CHEMISTRY.

Professor BAILEY.  
Professor CADY.  
Associate Professor DAINS.  
Associate Professor WHITAKER.  
Assistant Professor ALLEN.  
Assistant Professor JACKSON.  
Assistant Professor YOUNG.  
Mr. NASH, Instructor.  
Mr. RUPERT, Instructor.  
Mr. WILSON, Instructor.  
Miss MACKINNON, Instructor.  
Mr. GRIFFIN, Instructor.  
Mr. BAILEY, Assistant Instructor.  
Mr. HARDER, Laboratory Assistant.  
Mr. BRUCKMILLER, Laboratory Assistant.  
Miss ANDERSON, Laboratory Assistant.  
Mr. ROBINSON, Fellow in Chemistry.  
Mr. WESLEY, Southwest Kansas College Fellow.  
Mr. MEYERS, Washburn College Fellow.

**EQUIPMENT.**—The Chemistry Building was completed in 1900. The laboratories are equipped with gas, water and compressed air. There are balance rooms on each floor, storerooms and instructors' rooms conveniently located. There are several large laboratories, one of which accommodates 280 students, another 144 students; the quantitative laboratory accommodates 80 and the organic 144. The largest lecture room seats over 300. Special attention has been paid to ventilation, which is accomplished by means of a fan blower forcing air into the laboratories, and hoods between all the windows to carry off injurious fumes. In the basement is a liquid-air plant, an assay laboratory, a metallurgical laboratory, and the industrial research laboratories.

The department is well supplied with all the necessary and usual apparatus for lecture illustration and demonstration, for laboratory work in the undergraduate courses, together with adequate equipment for effective research work in physical, organic, inorganic, analytical, industrial and metallurgical chemistry. The liquid-air plant offers somewhat unusual opportunities for investigations at low temperatures.

Work of the State Board of Health is carried on in a well-equipped food laboratory, and two water-survey laboratories, one for mineral analysis and the other for sanitary water analysis.

**ADVICE AS TO CHOICE OF COURSES.** Students desiring to become professional chemists should select courses 1, 2, 3, 4, 54, 61 and 65. The remainder of the possible forty hours in chemistry should be devoted to the subject or subjects which will best fit them for their chosen work.

Those desiring to teach should select not less than twenty-five hours, which should include courses 1, 2, 3, 4, 52 and 53.

For business or general culture, or as a foundation work for medicine, botany, zoölogy, geology, mineralogy or physics, at least chemistry 1, 2 and 4 should be studied.

The department will gladly confer with students majoring in chemistry and advise them as to choice of courses best adapted to individual needs.

1.—ELEMENTARY CHEMISTRY. Five hours, first semester, 1:30 to 3:30; second semester, 10:15 to 12:15. Recitations, lectures and laboratory work. Professor Bailey and assistants. Students presenting chemistry for admission to College are not admitted to this course for credit.

2.—INORGANIC CHEMISTRY. Five hours, first semester. Lecture, Monday, at 8; recitations, Wednesday and Friday, at 8 or 9. Laboratory, Tuesday and Thursday, 8 to 10 or 1:30 to 3:30. Prerequisite, course 1. Professor Cady and assistants.

3.—QUALITATIVE ANALYSIS I.\* Five hours, second semester. Lectures and recitations, Tuesday and Thursday, 8 to 9. Laboratory, Monday, Wednesday and Friday, 8 to 10, or 1:30 to 3:30. Prerequisite, course 2. Professor Cady and assistants.

4.—ORGANIC CHEMISTRY I. Five hours, both semesters, 1:30 to 3:30. Must be preceded by courses 1 and 2. Associate Professor Dains.

50.—QUALITATIVE ANALYSIS II. Three hours, second semester, 8 to 10. An advanced course, especially on the rare metals. Prerequisite, course 3. Professor Cady.

51.—INDUSTRIAL CHEMISTRY. Three hours, second semester, at 11:15. A study of the manufacture of the technically more important inorganic compounds. Prerequisite, courses 1, 2, 3. Associate Professor Whitaker.

52.—SANITARY AND APPLIED CHEMISTRY. Two hours, first semester, 10:15 to 12:15. A study of the atmosphere, fuels, heating, ventilation, lighting, water supply, sewage, soap, and similar topics. Bailey's Sanitary and Applied Chemistry, part I. Prerequisite, course 1. Professor Bailey.

53.—CHEMISTRY AND PHYSIOLOGY OF FOODS. Three hours, second semester, 3:30 to 5:30. A study of food supply, its composition, preparation and adulteration. The study of dietetics from a chemical standpoint, balanced rations and economy of food is also carried on. Bailey's Sanitary and Applied Chemistry, part II. Not necessarily preceded by course 52. Prerequisite, course 1. Professor Bailey.

54.—QUANTITATIVE ANALYSIS I. Five hours, first semester, 10:15 to 12:15, or 3:30 to 5:30; or second semester, 1:30 to 3:30. Prerequisite, course 3. Assistant Professor Allen, and assistants.

55.—QUANTITATIVE ANALYSIS II. Two, three, or five hours, either semester, by appointment. Prerequisite, course 54. In connection with this work some specialty, such as chemistry of the cement industry, of the glass industry, of the packing-house industry, sugar chemistry, iron analysis, gas analysis, or rock analysis, can be pursued. Assistant Professor Allen.

56.—WATER ANALYSIS. Three hours, second semester, by appointment. Laboratory work and conferences upon assigned readings. The course covers sanitary, mineral and boiler feed water analysis, together with the principles and practice of the purification of water for municipal and other uses. Prerequisite, course 54. Assistant Professor Young.

57.—ASSAYING AND METALLURGICAL ANALYSIS. Three or five hours, second semester, 3:30 to 5:30. The three-hour course will cover the fire assay of gold, silver, copper and other metals. If a student has not taken course 55 he may profitably supplement the fire assaying with two hours' work on the volumetric assay of ore and furnace products.

58.—FOOD ANALYSIS. Four hours, both semesters, by appointment. Must be preceded by courses 1, 2, 3 and 54. Assistant Professor Jackson.

60.—ORGANIC CHEMISTRY II. (A continuation of course 4.) Five hours, both semesters, 3:30 to 5:30. Associate Professor Dains. After the years 1911 and 1912 this course will not be given in the first semester.

61.—METALLURGY I. Five hours, first semester, at 9. Three hours of classroom work on general metallurgy, the metallurgy of iron and steel, and two hours of laboratory work. Prerequisite, course 3. Associate Professor Whitaker.

62.—METALLURGY II. Three hours, second semester, at 9. The metallurgy of lead, zinc and copper, followed by that of silver, gold, mercury and tin. Prerequisite, course 3. Associate Professor Whitaker.

63.—METALLURGICAL LABORATORY. Two hours, second semester, by appointment. This course includes high-temperature measurements, calorimetry, preparation of silicates and alloys, study of roasting, reduction, oxidation, amalgamation, chlorination, cyaniding, and leaching. Prerequisite, course 61, or may accompany course 62. Associate Professor Whitaker.

64.—PHYSICAL CHEMISTRY. Five hours, first semester, at 10:15. A course paying special attention to electrochemistry. Lectures, recitations and laboratory work. Prerequisites, course 3 and general physics and calculus. Professor Cady.

65.—PHYSICAL CHEMISTRY. Five hours, second semester, at 10:15. A general course in theoretical and physical chemistry. Lectures, recitations and laboratory work. Prerequisites, courses 1, 2, 3, 4, 54, general physics and calculus. Professor Cady.

66.—ORGANIC CHEMISTRY, SHORTER COURSE. Three hours, first semester, at 11:15. Selected chapters in organic chemistry intended for students taking work in the department of home economics. Students desiring to enter this course are advised to consult with the department, as it will not be considered a preparation for course 60 and those having had course 66 can not take course 4 for full credit.

67.—TOXICOLOGY. One hour, second semester, at 11:15. A discussion of the sources, properties, methods of detection, *post-mortem* appearances, fatal doses and method of treatment in case of inorganic or organic poisons. Lectures and examinations. Prerequisite, fifteen hours of chemistry. Professor Bailey.



## DESIGN.

Professor GRIFFITH.  
Assistant Professor JONES.  
Miss BENSON, Instructor.

**EQUIPMENT.**—In the fall of 1911 the studios of the department of design will move into the new rooms provided for them in the first wing of the new Administration Building. They are well equipped, with many casts from the antique, books and plates upon the theory and history of ornamental design, printing presses, a potter's wheel and easels. The classical museum and the museum of natural history offer an abundance of material for the use of students in design. Kilns are available for the firing of pottery, and the equipment of Fowler Shops for the work in wood and metal.

**ADVICE AS TO CHOICE OF COURSES.**—The following courses are optional. Technical students to whom some drawing is essential are advised to take course 50. Students wishing training in artistic perception and graphic expression for its general culture value should take course 50, followed by 52 and 54.

**50.—FREE-HAND DRAWING.** Three hours, both semesters, 8 to 10. Drawing with pencil and charcoal from the cast and objects of still life, which aims to teach the student to construct form in a simple and correct manner; drawing with pen and ink and water colors for illustrative and reproductive processes. Professor Griffith.

**51.—FREE-HAND DRAWING.** Three hours, both semesters, 8 to 10. A continuation of course 50. Professor Griffith.

**52.—PRINCIPLES OF ART.** Two hours, first semester, at 11:15. A lecture course on the theory of the technical beauties of a work of art, presenting the principles of composition and perspective, together with a consideration of technical processes. The object of the course is to give the student a critical knowledge necessary to understand and more fully enjoy a work of art. Professor Griffith.

**53.—MANUAL ARTS.** No credit. A preparatory course in wood carving and construction, exercises and problems in metal work, including raised forms, chased and pierced decoration, soldering, brazing and finishing. One semester, five hours per week. Must be preceded or accompanied by course 50. Assistant Professor Jones.

**54.—DESIGN I.** Three hours, both semesters, at 10:15. The anatomy of pattern and the planning of ornament. Prerequisite, course 50. Miss Benson.

**55.—DESIGN II.** Three hours, both semesters, at 8. The application of design. Prerequisite, course 54. Miss Benson.

**56.—APPLIED DESIGN I.** One hour, one semester, five hours per week, by appointment. Must be preceded by courses 54 and 55. The application of design in the art of wood carving, inlaying, beaten metal, cast metal, etching, chasing and enameling on brass, copper and silver.



57.—APPLIED DESIGN II. One hour, one semester, five hours per week, by appointment. A continuation of course 56 and the making of jewelry.

58.—HISTORY OF DESIGN. Two hours, first semester, at 10:15. Prerequisite, course 57. Professor Griffith.

For other courses in drawing, see School of Fine Arts and School of Education.

## ECONOMICS.

Associate Professor BOYNTON.

Assistant Professor PUTNAM.

Mr. FANCIS D. SCHNACKE, Fellow.

**EQUIPMENT.**—Instruction in the department of economics is conducted chiefly by lectures, and reading and investigation in the library, aided in the elementary courses by textbooks. The University library contains about 2000 volumes relating to the courses of instruction. All of the principal economic journals are on file in the reading rooms for the use of students. In addition, there are charts, maps, and outlines. A limited amount of investigation of social and economic conditions is carried on.

**ADVICE AS TO CHOICE OF COURSES.** Economics 1 is an essential foundation and a prerequisite to all subsequent courses in economics. Economics 2 and 3 lay the foundation for economics 50 to 60 inclusive.

It is very desirable that students should consult with the instructors before choosing a group of studies in the department, as there are three or more distinct lines of work, namely, economic theory, economic history, and finance, besides courses in applied economics.

Students of the College or University who are looking forward to a business career will find in the courses of economics here offered a line of study especially adapted for business training. It is in such courses of economic science that the forces and laws controlling the business world are best illustrated and grasped by the future man of affairs.

With this end in view, the work, as far as possible, should be undertaken in a consistent and orderly manner, as outlined in the numerical arrangement of courses here presented.

While every course published in the department of economics is valuable as a preparation in business, special attention should be called to accounting, insurance, business management, transportation, railway rates, money and credit, banking, etc.

Advanced engineering students who can not take economics I are allowed to take the courses in economic history, transportation, railway rates, and all such economic courses bearing on engineering activities, but such students must be registered in the College.

1.—ELEMENTS OF ECONOMICS. Three hours. Given each semester, at 10:15, 11:15 and 2:30. This course endeavors to explain the general laws of man's relation to wealth. While it

furnishes the basis for the scientific understanding of business activities and serves as a foundation for all advanced courses in economics, it is essentially a concrete, analytical study of the phenomena of economic life. Assistant Professor Putnam.

2.—ECONOMIC HISTORY OF ENGLAND.\* Three hours, first semester, at 9. A study of the general development of agriculture, industry and commerce in England. The period covered extends from the Saxon invasion to the present time. Special attention is given to early agriculture, early town life, merchant and craft guilds and other corporate privileges, and the rise of commerce, trade routes, markets and fairs. Prerequisite, course 1. Associate Professor Boynton.

3.—ECONOMIC HISTORY OF THE UNITED STATES.\* Three hours, second semester, at 9. Attention is given to colonial agriculture, industry, and trade. The effect upon American life of the westward expansion, the economic significance of slavery in the South and in the country at large, the industrial development of the North prior to the Civil War, and the resources of the nation and the rise and importance of American manufactures will receive due attention. Banking, finance, transportation and the tariff form a part of the course. A survey will be made of the present industrial situation under corporate methods and of the outlook for democratic control of industrial conditions. Prerequisite, course 1. Associate Professor Boynton.

50.—MONEY AND CREDIT. Two hours, first semester, at 10:15. The principal forms of money and of credit, as developed in the experience of the principal countries, and as at present in use in various parts of the world, are studied. Prerequisite, course 1. Associate Professor Boynton.

51.—BANKING. Two hours, second semester, at 10:15. The principles of banking are studied, and also the principal banking systems, both as to the principal historical steps in their development and as to their present forms and methods in different countries. Prerequisite, course 50. Associate Professor Boynton.

52.—FINANCIAL HISTORY OF THE UNITED STATES. Three hours, second semester, at 10:15. This course will trace the experience of this country in providing money for the business of the country and revenue for the federal government. The laws of the United States in regard to currency, banking, public revenue, expenditure, and debt, the methods of administering those laws, and the resultant conditions, will be examined. Prerequisite, course 1. (Not given in 1912-'13.)

53.—PUBLIC FINANCE. Three hours, first semester, at 10:15. The different sources of government revenue are examined, taxation receiving chief attention. Government expenditure and public debt, also, are studied. Prerequisite, course 1. Associate Professor Boynton.

54.—CORPORATE FINANCE. Two hours, first semester, at 9. The financial side of large business operations, as met with chiefly in corporations, is studied with a view to giving a better

understanding of frequently misunderstood corporate actions. Prerequisite, course 1. Assistant Professor Putnam.

55.—HISTORY OF COMMERCE AND COMMERCIAL GEOGRAPHY. Three hours, first semester, at 11:15. A survey is made of the commerce and trade routes of the ancient peoples surrounding the Mediterranean Sea, of the mediæval commerce by the Italian cities and the Hanseatic League, the position of the trader and the merchant, together with the commodities of early commerce. The development of the commerce of the separate nations is concluded to the present time, the policies they have pursued in securing it, and the natural advantages each possesses in the competition of the world market. The sources of raw materials, the location of the demand and supply of finished products, and the governmental activities designed to stimulate national prestige along commercial lines. Prerequisite, course 1. Associate Professor Boynton.

56.—ECONOMICS OF DISTRIBUTION. Two hours, first semester, at 9. This course gives an opportunity for pursuing the study of economic theory further and more thoroughly than is possible in course 1. It aims to develop the theory of value in its application to rent, interest, profits, wages and population. Prerequisite, course 1. Assistant Professor Putnam. (Not given in 1912-'13.)

57.—HISTORY AND DEVELOPMENT OF TRANSPORTATION. Two hours, first semester, at 11:15. Methods of transportation; their economic aspects. The historical development of the canal and the railway. Special attention to United States. This course is designed as preparation, in part, for course 58. Prerequisite, course 1. Should be preceded by courses 3 and 55. Associate Professor Boynton. (Not given in 1912-'13.)

58.—RAILWAY RATES AND GOVERNMENT REGULATION. Three hours, second semester, at 11:15. A study of the theory of railway rates, competition in transportation, and the problems of local and individual discrimination. The experience of state railway commissions and the work of the Interstate Commerce Commission, and the efforts by recent legislation, state and national, to deal with the problems arising in connection with transportation. Prerequisite, course 1. Should be preceded by course 57. Associate Professor Boynton.

59.—HISTORY OF TRADE-UNIONISM AND LABOR ORGANIZATION. Three hours, first semester, at 11:15. The growth and nature of labor organizations since the appearance of a distinct wage-earning class in society will be traced. Special consideration will be given to the growth of trade-unionism in England during the past 125 years, and to the more recent development of the labor movement in the United States, Germany, and Australasia. Prerequisite, course 1. Should also be preceded by courses 2 and 3. Associate Professor Boynton.

60.—LABOR PROBLEMS. Two hours, second semester, at 9. Present-day problems connected with labor—the problems arising from the existence of a laboring class and an employing class. Their mutual relations, the natural difficulties arising



between them, and the effect of these relations upon society. Prerequisite, course 1. Should be preceded by courses 56 and 59. Assistant Professor Putnam. (Not given in 1912-'13.)

61.—INSURANCE. Two hours, second semester, at 9. The general economic nature of risk; different groups of insurance—marine, fire and life—and various newer extensions of the principles to other kinds of risks; various forms of insurance organizations. Prerequisite, course 1. Assistant Professor Putnam.

62.—ACCOUNTING. Two hours, second semester. The object of this course is to develop the economic principles underlying the so-called higher accounting, which aims to give, at all times, a true and complete, but condensed, representation of the real condition of the particular business to which it is applied. Prerequisite, course 1. (Not given in 1912-'13.)

63.—ECONOMICS OF AGRICULTURE. Two hours, second semester. Special reference to American conditions. The settlement of the public domain, the present efforts of the government to reclaim waste areas by irrigation, and the organized work and coöperation of the Department of Agriculture. The statistics of crop production, markets for agricultural products at home and abroad. Land values, rents and taxation, in their special bearing on agricultural lands. (Not given in 1912-'13.)

64.—INVESTMENTS. Two hours, second semester, at 11:15. A study of the various fields of investment, including railway, mining and industrial securities, and the bonds of governments and municipalities. The various forms of stocks, bonds, mortgages, etc., the elements of security and of risk involved in investments, and the modern institutions conducting this business, such as the stock exchanges, brokerage firms, banks and trust companies, insurance and investment companies, will constitute the principal features of the course, and its aim will be to determine, so far as possible, the elements of a wise and conservative investment. Prerequisite, course 1. Associate Professor Boynton.

## EDUCATION.

The following courses in the School of Education are open to College Juniors and Seniors, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Education as well as the College, and will be admitted to the classes as students of the School of Education.

Courses in Education, of which detailed description will be found on other pages (*post*), are arranged in four groups. College students may not offer more than six hours in any one group.

Historical group, numbers 50, 51, 59, 60, and 63.

Scientific and theoretical group, numbers 53, 56, 64, 65, 66, 67, 68, 70, and 71.

Administrative and practical group, numbers 55, 57, 61, 72, 73, and 74.



Teachers' courses, numbers 80, 81, 82, 83, 85, 86, 87, 88, 89, 90, 91, 92, and 93.

No college credit will be given for practice teaching.

### ENGINEERING.

The following courses in the School of Engineering are open to College students, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Engineering as well as the College, and will be admitted to the classes as engineering students.

3.—DESCRIPTIVE GEOMETRY. Three hours, second semester. Assistant Professor Hood.

6.—ELEMENTARY MECHANICS. Two hours, first semester. Assistant Professor Hood.

2.—SURVEYING. Five hours, second semester. Associate Professor Dalton.

50.—MECHANICS. Five hours, first semester. Associate Professor H. A. Rice.

51.—STRENGTH OF MATERIALS. Five hours, second semester. Associate Professor H. A. Rice.

53.—HYDRAULICS. Two credit hours, first half of first semester. Assistant Professor Corp.

50.—DYNAMO MACHINERY. Three hours, first semester. Professor Shaad.

51.—THEORY OF ALTERNATING CURRENTS. Five hours, second semester. Professor Shaad.

57.—THERMODYNAMICS. Two and one-half hours' credit, first half of first semester. Professor Walker.

### ENGLISH LANGUAGE AND LITERATURE.

Professor DUNLAP.  
 Professor HOPKINS.  
 Associate Professor O'LEARY.  
 Associate Professor WHITCOMB.  
 Associate Professor SISSON.  
 Assistant Professor RAYMOND.  
 Assistant Professor LYNN.  
 Assistant Professor GRAY.  
 Assistant Professor JOHNSON.  
 Assistant Professor GARDNER.  
 Assistant Professor CROISSANT.  
 Miss GILBREATH, Instructor\*  
 Miss WINSTON, Instructor.  
 Miss MORGAN, Instructor.  
 Miss HUNT, Instructor.  
 Miss MCINTYRE, Instructor.  
 Mr. PALMER, Instructor.  
 Mr. REED, Instructor.  
 Mr. DERBY, Fellow.

EQUIPMENT.—Apart from a number of portraits and historical maps, the equipment for this department is the University library, in which are collections of volumes and periodicals re-

\* Absent on leave, 1911-'12.

lating especially to rhetoric and composition, to English literature, and to the English language. There are complete sets of journals, such as *Anglia* and *Englische Studien*, and the publications of the Early English Text Society, the Chaucer Society, the English and American Dialect Societies, the Spenser Society, the Shakspeare Society, the New Shakspeare Society, the Shelley Society, and the Browning Society. The library also possesses the Shakspeare Jahrbuch, and facsimiles of the quartos and folios of Shakspeare. The total number of volumes pertaining to the subjects in this department is 9896. Of these 1049 are devoted to Shakspeare, 6597 to English literature, 382 to English philology, and 1868 to American literature.

ADVICE AS TO CHOICE OF STUDIES.—Not later than the beginning of his Junior year, every student should confer with an instructor in reference to choice of studies. *He should take special notice of the fact that certain elementary and fundamental courses scheduled for Freshman and Sophomore years—courses 1, 2, 10 and 11, or their equivalent—must be completed before he can be admitted to any other English courses whatever; and that courses 12 and 13, scheduled for the Sophomore year, or their equivalent, are prerequisite to all succeeding courses in English literature except 14 and 15.*

*For the requirements for a teachers' certificate in English, see course in the School of Education.*

#### *Rhetoric and Composition.*

1.—RHETORIC AND ENGLISH COMPOSITION.\*\* Three hours, first semester, at 8, 9, 10:15, 11:15, 1:30, 2:30 and 3:30. Themes and exercises, with outlines of rhetorical theory. Required of all Freshmen in the College not offering for entrance a fourth unit in English composition. Assistant Professor Gardner and assistants.

2.—RHETORIC AND ENGLISH COMPOSITION.\*\* Two hours, second semester, at 8, 9, 10:15, 11:15; 1:30, 2:30 and 3:30. A continuation of course 1. Required of all Freshmen in the College not offering for entrance a fourth unit in English composition. Assistant Professor Gardner and assistants.

Credit for courses 1 and 2 is given provisionally and will be withdrawn for subsequent use of notably bad English.

50.—NARRATION AND DESCRIPTION. Three hours, first semester, at 8 and 9. A study of general principles, with exercises. A fundamental course, recommended as preparation for journalism 50 and 51 and English 55 and 58. Associate Professor O'Leary and Assistant Professor Lynn.

51.—NARRATION AND DESCRIPTION. Two hours, second semester, at 8 and 9. A continuation of course 50. Associate Professor O'Leary and Assistant Professor Lynn.

52.—EXPOSITION. Two hours, first semester, at 9. A study of general principles, with outlines and exercises. A fundamental course. Recommended as preparation for English 55 to 58, inclusive, and journalism 50 and 51. Assistant Professor Gardner.

53.—ARGUMENT. Three hours, second semester, at 2:30. A study of the general principles of logic as applied in discourse, with exercises and briefs. Professor Hopkins.

55.—LITERARY CRITICISM. Two hours, first semester, at 1:30. Study of the principles and methods of criticism through its literature, with practice in book reviewing and in critical writing. Professor Hopkins.

56.—VERSIFICATION. One hour, first semester, Monday, at 3:30. Study of the forms and principles of English verse, with exercises. Professor Hopkins.

57.—ESSAY WRITING. Two hours, second semester, at 10:15. A study of general principles, with exercises. Associate Professor O'Leary.

58.—PROSE INVENTION. Two hours, second semester, at 1:30. General survey of theories of literary art, with practice in original production. Library and conference course, with required thesis. Prerequisites, one or more advanced courses in English composition. Professor Hopkins.

*Language.*

60.—ELEMENTARY OLD ENGLISH. Three hours, first semester, at 3:30. Old English grammar, with reading of West Saxon prose texts. A prerequisite for all other courses in Old English. Assistant Professor Croissant.

61.—ELEMENTARY OLD ENGLISH. Two hours, second semester, at 3:30. *Béowulf*. Open only to students who have had course 60. Assistant Professor Croissant.

62.—MIDDLE ENGLISH. Two hours, second semester, at 2:30. Language and literature of the fourteenth century, exclusive of Chaucer. Assistant Professor Croissant.

63.—MIDDLE ENGLISH. Three hours, second semester, at 3:30. Reading of Middle English texts, with study of the development of the English language, its sounds, inflections, and syntax. Assistant Professor Croissant.

64.—ADVANCED OLD ENGLISH. Three hours, first semester, at 1:30. Selections from *Cynewulf* and the *Caedmonian* poems. Must be preceded by course 60. Assistant Professor Croissant.

65.—METRICAL ROMANCES. Two hours, second semester, at 2:30. Reading of Middle English romances. Assistant Professor Croissant.

66.—THE ANGLO-SAXON CHRONICLE. Two hours, first semester, at 1:30. Reading of the *Chronicle*, with special attention to the life of the English people. Must be preceded by course 60. Assistant Professor Croissant.

68.—MODERN ENGLISH GRAMMAR. Two hours, first semester, at 11:15. English grammar, chiefly practical, for intending teachers. Open only to qualified applicants after consultation with the instructor. Assistant Professor Gray.

*English Literature.*

10.—ENGLISH LITERATURE. Two hours, first semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Class study of representative authors, with required library reading. Open to all students of the College not offering English literature as a fourth unit of entrance English. Required for admission to all other courses in English, except in the case of students who offer for entrance a fourth unit in English literature. Assistant Professor Johnson and assistants.

11.—ENGLISH LITERATURE. Three hours, second semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. A continuation of course 10. Required for admission to all other courses in English, except in the case of students who offer for entrance a fourth unit in English literature. Assistant Professor Johnson and assistants.

12 *a* and *b*.—HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions, at 8, 9, and 10:15. Two-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Prerequisites, English 1, 2, 10, and 11. Required for admission to courses 60 to 66, inclusive, and courses 71 to 90, inclusive. Assistant Professor Gray and assistants.

13 *a* and *b*.—HISTORY OF ENGLISH LITERATURE. Two or three hours, second semester. Three-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions, at 8 and 9. A continuation of course 12. Prerequisites, English 1, 2, 10, 11, and 12. Required for admission to courses 60 to 66, inclusive, and courses 71 to 90, inclusive. Assistant Professor Gray and assistants.

14.—TYPES OF LITERATURE I. Three hours, first semester, at 11:15. Poetry: the lyric, epic, and drama. With course 15, a view of English literature according to species, a method of studying and classifying literature, and a preparation for advanced courses. Lectures, discussions, and reading-reports. Prerequisites, English 1, 2, 10, and 11. Assistant Professor Gray.

15.—TYPES OF LITERATURE II. Two hours, second semester, at 10:15. Prose: the essay, letter, biography, and novel. Continuation of course 14; but may be taken separately; prerequisites, same as in 14. Lectures, discussions, and reading-reports. Assistant Professor Gray.

71.—AMERICAN LITERATURE I. Three hours, first semester, at 1:30. General history, with special reference to the work of the chief American poets. Lecture and library course, with class study of representative selections. Professor Hopkins.

72.—AMERICAN LITERATURE II. Three hours, second semester, at 1:30. Study of later writers and of current literature, with special reference to fiction. Lecture and conference course, with required readings and reports. Professor Hopkins.

73.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours, first semester, at 9. The period covered is that from 1660 to approximately 1735. Associate Professor O'Leary.



74.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Three hours, second semester, at 9. Covers the period from 1735 to 1798. Associate Professor O'Leary.

75.—VICTORIAN LITERATURE, exclusive of the novel and Tennyson and Browning. Two hours, first semester, at 10:15. Professor Dunlap.

76.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, first semester, at 11:15. Prose, exclusive of the novel. Biographical and critical lectures. The essay. Criticism. History. The authors studied are Lamb, Hazlitt, De Quincey, Landor, Newman, Arnold, Carlyle, Macaulay, Ruskin, Pater, and Stevenson. Two hours of library work daily and preparation of two theses. Professor Dunlap.

77.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, second semester, at 9. Poetry. Biographical and critical lectures. The authors studied are Wordsworth, Coleridge, Southey, Byron, Arnold, Tennyson, and Browning. Two hours of library work daily and preparation of two theses. Professor Dunlap.

78.—SHAKSPERE. Three hours, both semesters, at 10:15. Lectures upon the life and times of Shakspeare. Study and interpretation of three plays, with special attention to literary form, plot construction, character study, and Elizabethan grammar. Two hours of library work required daily and preparation of two theses. Professor Dunlap.

79.—CHAUCEER. Three hours, first semester, at 9. Lectures upon Middle English grammar and upon the life and times of Chaucer. Neither Old nor Middle English required for entrance. Careful reading of the Prologue, Knightes Tale, and the Nonne Preestes Tale. Rapid reading of a large part of the Canterbury Tales. Preparation of two theses. Professor Dunlap.

80.—SHELLEY AND KEATS. Two hours, second semester, at 11:15. Lectures, and interpretation of selected poems. Professor Dunlap.

81.—BROWNING AND TENNYSON. Two hours, second semester, at 8. Interpretative study of selected poems, with general view of the works of both authors. Assistant Professor Lynn.

82.—CARLYLE AND EMERSON. Two hours, second semester, at 2:30. The characteristics of each man's work and its relation to nineteenth century thought. Class reports and discussions of other leading contemporary thinkers. Assistant Professor Johnson. (Not given in 1914.)

83.—MILTON AND HIS CONTEMPORARIES. Two hours, second semester, at 2:30. The poetry and prose of Milton, and of a selected number of representative contemporary authors, including Browne, Taylor, and the Caroline poets. (Not given in 1913.) Assistant Professor Johnson.

84.—THE MODERN ENGLISH LYRIC. Two hours, first semester, at 3:30. The form and spirit of lyric poetry in general, and special study of a selected period. Associate Professor Whitcomb.

85.—THEORY OF THE DRAMA AS A FORM OF ART. Two hours, first semester, at 2:30. Lectures and written exercises. Associate Professor Whitcomb.

86.—HISTORY OF THE ENGLISH DRAMA. Three hours, first semester, at 2:30. From the early liturgical plays to 1642. Study of influence and the growth of types; stage history; and reading and criticism of about thirty plays. Written reports and lectures. Assistant Professor Johnson.

87.—HISTORY OF THE ENGLISH DRAMA. Two hours, second semester, at 2:30. English dramatic history from 1642 to the present time, with special attention given the Nineteenth Century. Associate Professor Whitcomb.

88.—THE ENGLISH NOVEL. Three hours, second semester, at 11:15. An historical and critical survey of the English novel, from Defoe to Meredith. Lectures on the growth and development of the novel. Study of selected typical novels, illustrative of important phases of fiction. Two hours of library work daily and preparation of two theses. Professor Dunlap.

89.—THE ENGLISH ESSAY. Two hours, second semester, at 9. A study, historical and critical, of the essay as a literary form, from Bacon to the present time. Lectures, theses, and library work. Associate Professor O'Leary.

90.—THE DEVELOPMENT OF ENGLISH PROSE. Three hours, first semester, at 11:15. A study of the most important prose written between 1350 and 1660, with a survey of the development of prose style. Lectures, class reports, and library work. Associate Professor Sisson.

### ENTOMOLOGY.

Professor HUNTER.  
Mr. HUNGERFORD.  
Mr. FRASER, Fellow.

EQUIPMENT.—The arrangement of the laboratories is such as to provide for: (1) General instruction; (2) research work in serial breeding experiments and conditions governing development. Special thermal regulators for determination of influence of temperature on development are used in these researches. A feature of great value is the recent completion of the cross-referenced card index to the current literature of the subject. The extensive collections, both biologic and systematic, offer exceptional facilities for comprehensive instruction in the various groups. A more extended notice of these collections will be found under the head of "Museums," (*post.*) A large series of cabinets has been especially arranged to aid in teaching. These are supplemented by models illustrating developmental processes. The materials for study and apparatus at hand afford an adequate fund for the courses offered.

ADVICE AS TO CHOICE OF COURSES.—Entomology as taught at the University is distinctly differentiated from the work in zoölogy. The following courses are designed to meet the needs of two classes of students, viz.: (1) Those who in general educa-

tion desire some knowledge of the subject matter and general principles of animal biology, as illustrated by this division of the animal kingdom. For this class, the first four courses are adapted. (2) Those preparing to become teachers and investigators engaged in research work. After completing the fundamental courses, 1, 2, 51, 53, the aims of each student will largely determine the selection of advanced courses. The requirements for those expecting to teach zoölogy in secondary schools are the first four courses. Those preparing for appointments as economic entomologists should take, in addition to these, 54, 55, and 56.

50.—GENERAL ENTOMOLOGY. Three hours, second semester, 1:30 to 3:30. This course includes a general survey of the morphology, distribution and behavior of the orders of insects. The work in the laboratory consists of a morphological study of types, followed by a comparison of each type studied with closely allied forms. A series of lectures and assigned readings accompany the laboratory work. Prerequisite, zoölogy 1. Professor Hunter.

52.—SYSTEMATIC ENTOMOLOGY I. Two hours, second semester, 1:30 to 3:30. This course gives special prominence to the systematic position of the orders studied. The laboratory work consists of (a) determination of species; (b) careful morphological study of organs, with special reference to their evolution; (c) when possible, an extended study of the species of one or more families. In addition to the text, monographs and current literature of special groups will be used. Prerequisite, zoölogy 1. Professor Hunter.

51.—GENERAL ENTOMOLOGY II. Three hours, first semester. A continuation of course 1. Second semester, Monday, Wednesday, and Friday, 1:30 to 3:30. Professor Hunter.

53.—SYSTEMATIC ENTOMOLOGY II. Two hours, first semester, 1:30 to 3:30. A continuation of the work of course 2. Mr. Hungerford.

54.—MORPHOLOGY OF INSECTS. Three hours, first or second semester, by appointment. A continuation of course 51, conducted in more advanced manner. Students are required to review a piece of well-executed morphological work, with a view of leading up to original research on problems to be assigned. Professor Hunter.

55.—TAXONOMY OF INSECTS. Three hours, first or second semester. A continuation of course 53, enabling the student to undertake the serious study of some one family. Students qualified to take this course are afforded an opportunity to work with the material taken on the biological survey the previous summer. Professor Hunter.

56.—APPLIED ENTOMOLOGY. Two hours, first semester, 10:15 to 11:15. Lectures, readings, and observations in the field on forms of economic value; life histories, habits and methods of combating the injurious forms, and of utilizing the beneficial. Prerequisite, course 1 or 2. Mr. Hungerford.



FRENCH. (See Romance Languages and Literatures.)

## GEOLOGY AND MINERALOGY.

Professor HAWORTH.

Assistant Professor TODD.

Assistant Professor TWENHOFEL.

**EQUIPMENT.**—The library includes about all the standard books on geology, paleontology and mineralogy in the English, German and French languages, fairly complete sets of governmental, state and foreign reports, numerous American and foreign periodicals, complete sets of many of them, and transactions of scientific societies, domestic and foreign, all of which are located in the reading room of the Geology and Mining Building. Other periodicals and transactions which belong jointly to two or more departments are located in the Spooner Library Building, readily accessible to all students. In addition the department has numerous charts, maps, lantern slides, *papier-mâché* models of structural and topographic forms, sets of wooden and glass models for crystallography, petrographic microscopes, and hundreds of thin rock sections and other hundreds of specimens of crystalline rocks for classes in petrology.

Commodious and well furnished laboratories for mineralogy, paleontology and geology and extensive collections of rocks, characteristic fossils, minerals, crystals, ores and other economic products are all conveniently located in the same building, while the Natural History Museum, not far away, is unusually rich in the remarkable vertebrate fossils for which Kansas and the western plains are noted.

**ADVICE AS TO CHOICE OF COURSES.**—*Geology.* The following courses in geology are designed to meet the requirements of two classes of students: those wishing to become working geologists, and those wishing only a general outline of the subject as a part of a liberal education. In the former case the student is advised to take all the courses offered, as nearly as possible in the order given. In the latter case he should begin with 1, and take 50, 51, or 52 and 53, in any order. Course 1 is open to all students of the College except Freshmen. Courses 50 to 59, inclusive, are open to undergraduates, and to graduates who have not had their equivalents.

*Mineralogy.* Students wishing to specialize in mineralogy should take courses 60 and 61; those wishing to specialize in petrography, 60, 61, 62 and 63. Should the student desire to give only a limited time to the subjects of mineralogy and petrography, courses 1, 60 and 62 should be chosen. Course 60 is open to College Juniors and Seniors. Courses 61, 62 and 63 are open to Juniors and Seniors, and also to graduates who have not had their equivalents.

*Paleontology.* Students contemplating the study of paleontology should take zoölogy 1 and geology 1 in order. Zoölogy 2 is also recommended as preparatory work.



*Geology.*

1.—ELEMENTARY GEOLOGY.\* Five hours, each semester, daily, at 9, 10:15, 11:15, and 2:30. A study of the elementary principles of geology, including a general outline of geologic principles and geologic agencies. An acquaintance with the elements of chemistry, zoölogy and botany will be of advantage in this course. Assistant Professor Todd and Assistant Professor Twenhofel.

50.—AREAL GEOLOGY I. Two hours, first semester, at 10:15. This is a continuation of course 1, with special reference to the stratigraphy of land areas, continental development, the history of animal and plant life, and the uses of fossil forms in the identification and correlation of geologic horizons. Prerequisite, course 1. Assistant Professor Todd.

51.—AREAL GEOLOGY II. Three hours, second semester, at 10:15. A continuation of course 50. Assistant Professor Todd.

52.—ECONOMIC GEOLOGY I. Three hours, first semester, at 9. A general study of the metallic products of mine and quarry, considered from a scientific and a practical standpoint, including the nature, origin, amount, and geographic and geologic distribution of the same. Prerequisites, elementary chemistry and geology 1 or 60. Lectures and library work. Professor Haworth.

53.—ECONOMIC GEOLOGY II. Two hours, second semester, at 10:15. Nonmetallic products. A continuation of course 52. Professor Haworth.

54.—PHYSIOGRAPHY. Three hours, second semester, at 9. A study of the general principles of physiography, with detailed studies of specific areas in latter parts of course. Prerequisite, course 1. Lectures, textbook, and library work. Professor Haworth.

55.—DYNAMIC GEOLOGY I. Two hours, first semester, by appointment. A brief course on the elementary principles of dynamic geology, including a study of continental development, mountain areas, mountain structure, mountain origin, and kindred subjects. Lectures, library and laboratory work. Prerequisites, courses 1, 50, and 51. Professor Haworth.

56.—DYNAMIC GEOLOGY II. Three hours, second semester. A continuation of course 55. Professor Haworth.

57.—INVERTEBRATE PALEONTOLOGY I. Five hours, first semester, by appointment. Consideration will first be given to the principles of paleontology, after which those invertebrate animals found in a fossil state will be studied in respect to their structure, classification and evolution. Lectures, library, and laboratory work. Geology I and zoölogy I are prerequisites, and zoölogy II very desirable. Assistant Professor Twenhofel.

58.—INVERTEBRATE PALEONTOLOGY II. Five hours, second semester, by appointment. A continuation of course 57, but will be stratigraphical in its character. A study will be made of the

principles of stratigraphy, and fossils will be studied as indices of time and geography. Lectures, library, and laboratory work. Invertebrate paleontology I is prerequisite. Assistant Professor Twenhofel.

59.—SOILS. Three hours, second semester, at 2:30. A short course on soils, including a study of origin, nature, fertility and maintenance of same in soils. Scientific and practical. Text-book, lectures, and readings. Prerequisites, chemistry I, geology I. Professor Haworth.

### *Mineralogy.*

2.—ELEMENTARY MINERALOGY I. Five hours, second semester, daily, 3:30 to 5:30. A brief course in crystallography, blow-pipe analysis, and systematic mineralogy, consisting of lectures and laboratory work. Prerequisite, elementary chemistry. Assistant Professor Todd.

61.—SYSTEMATIC MINERALOGY. Five hours, first semester, daily, by appointment. This course is a continuation of mineralogy I, including an extended study of mathematical and physical crystallography. Assistant Professor Todd.

62.—PETROGRAPHY. Three hours, first semester, by appointment. This course includes a study of the mineralogical and chemical composition of rocks, their origin, structural features, and classification. Professor Haworth.

63.—PETROGRAPHY. Three hours, second semester, by appointment. A continuation of course 62. Professor Haworth.

## GERMANIC LANGUAGES AND LITERATURES.

Professor CARRUTH.  
Associate Professor ENGEL.  
Associate Professor CORBIN.  
Assistant Professor KRUSE.  
Assistant Professor CAMPBELL.  
Assistant Professor BRIGGS.  
Assistant Professor STURTEVANT.  
Miss WILSON, Instructor.  
Mr. SEIPT, Instructor.  
Miss JONES, Instructor.  
Mrs. NEWPORT, Instructor.  
Mr. KIESEWETTER, Lector.

EQUIPMENT.—The German department has an excellent stereopticon and over 1000 stereopticon slides, illustrating scenery, costumes, and biography; an increasing number of excellent photographs and prints in frames; a set of thirty German wall maps showing the various separate states, and a few busts. The department has a Columbia graphophone and is accumulating a series of speech records for illustration of differing German pronunciation. There are 3748 volumes in the library of the German department, and twenty-one philological and literary journals are received.

The department has also a valuable collection of 3000 unbound dissertations and school programs, covering all fields of Germanistic scholarship. With the present library and this acquisition of special studies, the German department is prepared

to encourage graduate study at the University of Kansas in Germanic languages.

The Deutscher Verein owns a piano, which is used for accompanying the German songs of the Verein.

**ADVICE AS TO CHOICE OF COURSES.**—Students who plan to become teachers of German in high schools and academies should consult with the head of the department before the close of the Sophomore year. An outlined course for the four College years will be found on the department bulletin board, and is recommended to the careful attention of those concerned. Courses 1 to 17, inclusive, are open to all students of the College. Courses 50 to 58 are open to both undergraduates in the College and to graduate students. The full amount of Latin 1, 2, 3 for entrance is required as preparation for German 1 and 2. Students who enter with a deficiency in Latin and wish to take German 1 and 2 to make up entrance deficiency may do so in a class in the Oread high school, taught by an advanced student, or in the Lawrence high school, or with a private tutor. Courses 1, 2, 3, 4, 5, must be taken in this order.

1.—**GERMAN GRAMMAR.** Five hours, first semester, at 8, 9, 10:15, 11:15, 1:30 to 3:30; second semester, at 8, and 2:30. The twenty-two lessons of Carruth's Otis's Grammar, with composition exercises; Carruth's Reader, about fifty pages. Associate Professor Engel, Associate Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Miss Wilson, Miss Jones, and Mrs. Newport.

With the afternoon division, from 1:30 to 3:30, the laboratory method is used, requiring two hours' classroom work and one hour preparation outside. It is open to students of the College only. The other divisions will be determined by convenience of hours alone. Practice classes in beginning German, at eight o'clock, are formed in the Oread high school, to which a limited number of students who lack the requirement of entrance Latin will be admitted.

2.—**GERMAN READER, completed.** Five hours, first semester, at 9, 11:15, and 2:30; second semester, at 8, 9, 10:15, 11:15, and 3:30. Carruth's Reader, completed. Schiller's Wilhelm Tell (complete). Heyse's Die Blinden used as a basis for narrative and conversation. Also special exercises in word order and auxiliary verbs, and sight-reading. Associate Professor Engel, Associate Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Miss Wilson, Mr. Seipt, and Mrs. Newport.

3.—**GERMAN PROSE.** Five hours, first semester, at 8, 9, 10:15, 11:15, and 3:30; second semester, at 8, 9, and 11:15. Lessing's Minna von Barnhelm; Schiller's Der dreissigjährige Krieg, etc., preceded by review of grammar. Sight-reading. Associate Professor Engel, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Mr. Seipt, Mrs. Newport, and Miss Jones.

4.—**SCHILLER'S WALLENSTEIN.** Five hours, second semester, at 8, 9, 10:15, 11:15, and 3:30; first semester, at 8, 9, and 10:15. Outline of German literature. Composition and conversation. Associate Professor Engel, Associate Professor Corbin, Assist-



ant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Miss Jones, Miss Wilson, and Mrs. Newport.

5.—GERMAN COMPOSITION. Required of all students for admission to courses 9 and following. Three hours, first semester, at 8, 9, and 10:15; second semester, at 9, 10:15, and 11:15. Translation of connected English; Pope's German Composition, v. Jagemann's German Syntax, Fossler's Practical German Conversation. Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Sturtevant, Miss Wilson, Mr. Seipt, Miss Jones, and Mrs. Newport.

Courses 6, 7 and 8 are open to students who have had German 4, but no student may take more than one of them for credit.

6.—SCIENTIFIC GERMAN. Three hours, second semester, by appointment. Open to students in science on recommendation of the head of the scientific department. Introductory reading of Lassar-Cohn's *Die Chemie im täglichen Leben*, together with a survey of the literature of science in German, followed by more rapid and extensive reading in subjects suggested by the head of the scientific department. The purpose of this course is to develop rapid and intelligent reading of scientific German. Associate Professor Engel.

7.—HISTORICAL GERMAN. Three hours, second semester, by appointment. Open to students in history and sociology on recommendation of the heads of those departments. Introductory reading of Schönfeld's *German Historical Prose*, together with a survey of the literature of history in German, followed by more rapid and extensive reading of works suggested by the head of the major department. The method and purpose of this course correspond to those of course 6. Assistant Professor Kruse.

8.—JOURNALISTIC GERMAN. Three hours, second semester, by appointment. Open to students in journalism on recommendation of the head of that department. Introductory reading of Prehm's *Journalistic German*, together with a survey of German journalism, followed by more rapid and extensive reading of German periodicals. The method and purpose of this course correspond to those of course 6. Professor Carruth.

9.—GERMAN ORAL COMPOSITION. Two hours, first semester, at 11:15 and 1:30; second semester at 9, 10:15, and 11:15. Exercises in practical conversation and extemporaneous speaking, based on modern German prose. Must be preceded by 5. Mr. Kiesewetter.

10.—GOETHE'S *EGMONT*, AND EARLIER DRAMAS, with Schiller's two essays on *Egmont*. Two hours, second semester, at 9. Associate Professor Engel and Miss Wilson.

11.—SCHILLER'S *LATER DRAMAS*. Two hours, first semester, at 9 and 10:15. *Die Braut von Messina*, *Maria Stuart*, *Die Jungfrau von Orleans*. Associate Professor Engel and Assistant Professor Kruse.



12.—SCHILLER'S DON CARLOS AND EARLIER DRAMAS. Three hours, second semester, at 10:15. Associate Professor Engel.

Courses 9, 10, 11 and 12 are designed primarily as complements to the course in composition 5, and may not be taken subsequently except by special arrangement. Not more than five hours will be credited from this group.

13.—LESSING'S DRAMATURGIE. Two hours, second semester, at 8. Reading of portions of the Hamburgische Dramaturgie and a closer study of some of the problems which Lessing touches upon. Designed for students who wish to read some critical prose. (Not given in 1912-'13.) Assistant Professor Campbell.

14.—LESSING'S LAOCOON. Two hours, second semester, at 8. Reading and discussion of Lessing's theory of poetry and art, with translation and abstracts. Designed for students who wish to read some critical prose. Assistant Professor Campbell.

15.—LESSING'S NATHAN DER WEISE. Three hours, first semester, at 11:15. Professor Carruth or Associate Professor Corbin.

16.—GOETHE'S TASSO AND LATER DRAMATIC WORK. Two hours, first semester, at 11:15. Associate Professor Corbin.

17.—GOETHE'S FAUST (parts I and II). Three hours, second semester, at 11:15. Professor Carruth or Associate Professor Corbin.

From the group of courses 13, 14, 15, 16 and 17 not more than 6 hours may be taken for credit.

50.—GERMAN LITERATURE. Three hours, first semester, at 10:15. An outline history. Lectures, the class following Kluge and Scherer or Francke. Essays and criticisms by members of the class. Open only to students who have had twenty-five hours of the preceding courses or equivalent. Professor Carruth.

51.—GERMAN LITERATURE OF THE EIGHTEENTH CENTURY. Three hours, second semester, at 10:15. Klopstock, Wieland, Lessing, Herder, Goethe, and Schiller. Reading the chief works, with reviews. (Not given in 1912-'13.) Professor Carruth.

52.—HISTORY OF GERMAN PROSE FICTION. Three hours, second semester, at 10:15. Lectures on the history of the novel and on methods and schools in fiction. Hauff, Scheffel, Freytag, Keller. Careful reading of one work by each author; others outside. Theses on separate authors and on the whole course, by members of the class. Professor Carruth.

53.—GOETHE'S LYRICS. Two hours, first semester, at 8. Study of the lyrics in connection with the life and literary development of the author. Lectures and reports. Associate Professor Corbin.

54.—THE ROMANTIC LYRIC. Three hours, second semester, at 8. Study of the principal lyric writers from Novalis to Heine. Lectures and reports. Associate Professor Corbin.

55.—THE REALISTIC DRAMA. Three hours, first semester, at 8. A brief consideration of the development of the German drama, followed by a more intensive study of the dramas of Hebbel, Ludwig, and Anzengruber. Lectures, readings, and reports. Assistant Professor Kruse.

56.—THE NATURALISTIC DRAMA. Two hours, second semester, at 8. Hauptmann, Sudermann, and Halbe. Lectures, readings, and reports. Should be preceded by course 55. Assistant Professor Kruse.

57.—THE DRAMA OF THE ROMANTICISTS. Two hours, second semester, at 8. Heinrich von Kleist, Grillparzer, and Wagner. Lectures, readings, and reports. This course alternates with course 56. Assistant Professor Kruse.

58.—MODERN SWEDISH. Two hours, first semester, and three hours, second semester, by appointment. Fort's Elementary Swedish Grammar; Hildebrand's Läsobok, Esaias Tegnér's Fritiofssaga and Nattvardsbarnen. (Not given in 1912-'13.) Assistant Professor Sturtevant.

### GREEK.

Professor WILCOX.

Associate Professor STERLING.

EQUIPMENT.—Twenty-nine casts of sculpture, five models, a series of facsimile reproductions of Mycenæan works of art, a relief map, numerous wall maps, 800 photographs, 500 plates (many colored), 55 illustrated folios, 2500 volumes in library, 15 current periodicals, 2350 stereopticon slides.

ADVICE AS TO CHOICE OF COURSES.—Those who aim to become teachers of Greek or Latin or any other language, or who take Greek for general culture or discipline, should take the courses in order from 1 to 57, or as many of them as they have not taken before entering the University, or have time to take. Students preparing for the ministry will find it best to follow the same plan, and take the course in New Testament Greek II in addition or in place of some course in classical Greek they might otherwise take. Students who aim simply at reading the New Testament in the original for their own pleasure or profit can accomplish that by taking courses 12 and 13. Students of science and English may get in course 58 a good working knowledge of the scientific and other English words that are derived from Greek. Students of all literatures who can give no more time to Greek may get a good idea of the content of Greek literature, and especially a valuable knowledge of mythology, from courses 59 and 60, or a partial knowledge from either of these courses. Those who desire an introduction to the architecture of all periods may get it in course 61; to the sculpture and painting of all periods, in course 62. Greek students should take also the courses in Greek and Roman history, in the history of philosophy, and as many literary courses as possible.

#### *For Students of Classical Greek.*

1.—ELEMENTARY GREEK. Five hours, first semester, at 9. White's First Greek Book. Introductory course, aiming at a mastery of forms and syntax and the most common Attic vocabulary. Associate Professor Sterling.

2.—XENOPHON'S ANABASIS, four books. Five hours, second semester, at 9. Application of principles learned in preceding

course, with a study of Xenophon's life and works and a comparison of the *Anabasis* with records of other great military retreats. Associate Professor Sterling.

3.—HOMER'S ILIAD. Benner's Selections. Three hours, first semester, at 10:15. Reading of as much as possible in the original and the rest of the *Iliad* in translation. Study of Homeric forms and versification, with lectures on the epic style and Homeric life and times. Professor Wilcox.

4.—STORIES AND LEGENDS. Mythology in the original Greek. Two hours, first semester, at 10:15. The aim of this course is to give the student a knowledge of the many stories of gods, heroes and men that have come down to us from Greek authors. Professor Wilcox.

5.—PLATO. The *Apology*, *Crito*, and selections from the *Phædo* and the *Symposium*. Three hours, second semester, at 10:15. A study of the life and work of Socrates and an introduction to the writings of Plato. Professor Wilcox.

6.—HERODOTUS. Merry's Selections. Two hours, second semester, at 10:15. Reading of Merry's Selections in the original and other significant selections in translation. Lectures on the style and character and influence of Herodotus as a historian. Associate Professor Sterling.

7.—GREEK TRAGEDY. *Antigone* of Sophocles and *Iphigenia among the Taurians* of Euripides. Three hours, first semester, at 11:15. Study of dramatic form and history of the Greek drama. Lectures on the Greek theater. Associate Professor Sterling.

8.—PLUTARCH'S LIFE OF CÆSAR. Two hours, first semester, at 11:15. Du Pontet's Selections read in the original, and the rest in translation. Especially for Latin students, but open to all who are prepared to take the course. Associate Professor Sterling.

9.—DEMOSTHENES. Three hours, second semester, at 11:15. The *Philippics*. Study of the history of oratory and of the life and times of Demosthenes. Associate Professor Sterling.

10.—MODERN GREECE IN ANCIENT GREEK. The Greek War of Independence in Ancient Greek, by Chambers. An attempt to connect the present-day Greece with the past. Two hours, second semester, at 11:15. Associate Professor Sterling.

50.—THE CLOUDS OF ARISTOPHANES AND MEMORABILIA OF XENOPHON. Three hours, first semester, at 9, or by appointment. Outside reading of other plays of Aristophanes, a study of the methods of the comic stage and the sources for the life of Socrates. (Not given in 1912-'13.) Professor Wilcox.

51.—THE GORGIAS OF PLATO. Two hours, first semester, at 9, or by appointment. Outside reading of other dialogues of Plato, with especial reference to the methods of the sophists. Lectures and readings on Greek philosophy. Professor Wilcox. (Not given in 1912-'13.)

52.—HOMER'S ODYSSEY. Three hours, second semester, at 9, or by appointment. Reading of the whole book in the original,



with critical studies of selected portions. Outside reading of Seymour's *Life in the Homeric Age* and Murray's *Rise of the Greek Epic*. (Not given in 1912-'13.) Professor Wilcox.

53.—THUCYDIDES. Two hours, second semester, at 9, or by appointment. Reading of as much as possible in the original and the rest in translation. Studies in his style and historical method compared with Herodotus and later and modern historians. (Not given in 1912-'13.) Professor Wilcox.

54.—GREEK LITERARY CRITICISM. Three hours, first semester, at 9, or by appointment. The *Chœphoroi* of Æschylus, *Electra* of Sophocles, and *Poetics* of Aristotle. Professor Wilcox.

55.—LYRIC POETRY. Two hours, first semester, at 9, or by appointment. The elegiac and iambic poetry, Sôlon, Theognis, and others. Professor Wilcox.

56.—GREEK LITERARY CRITICISM. Two hours, second semester, at 9, or by appointment. The *Electra* of Euripides, *Frogs* of Aristophanes, and *Poetics* of Aristotle and Longinus on the Sublime. Professor Wilcox.

57.—LYRIC POETRY. Three hours, second semester, at 9, or by appointment. The melic poetry, Alcæus, Sappho, Simonides, Pindar, and Bacchylides. Professor Wilcox.

*For Students of the New Testament.*

12.—ELEMENTARY NEW TESTAMENT GREEK. An introductory course for students who have no knowledge of Greek and wish to get the New Testament Greek alone. Three hours, second semester, at 10:15. Associate Professor Sterling.

13.—NEW TESTAMENT II. Two hours, first semester, at 10:15. Reading of as much of the New Testament as possible in the original Greek. Associate Professor Sterling.

*For Students of English and Natural Science.*

58.—THE GREEK IN ENGLISH. Three hours, first semester, at 10:15. A study of English etymology, with special reference to Greek. Scientific and ordinary English words are traced to their origin in Greek. Only so much Greek is used as is necessary for the purpose. Associate Professor Sterling.

*Courses which Require no Knowledge of the Greek Language.*

59.—GREEK LITERATURE IN TRANSLATIONS. Three hours, first semester, at 11:15. The epic and lyric poetry, Herodotus, Plato, and Plutarch. The aim of this course is to give students of any literature a knowledge of the form and content of the literature that has influenced most widely all other literatures. Professor Wilcox.

60.—THE GREEK DRAMA IN TRANSLATIONS. Two hours, second semester, at 11:15. A dozen dramas or more of Æschylus, Sophocles, Euripides and Aristophanes are read and discussed from the points of view of form and content and influence on later and modern dramas. Professor Wilcox.

61.—GREEK ARCHITECTURE. Two hours, first semester, at 11:15. Most of the time is spent on Greek architecture, but the



fundamental principles of all styles are studied, with especial reference to the survivals and revivals of Greek elements. Professor Wilcox.

62.—GREEK SCULPTURE AND PAINTING. Three hours, second semester, at 11:15. This course also includes for purposes of comparison and appreciation a summary view of the sculpture and painting of later and modern times. Professor Wilcox.

HARMONY. (See Music.)

## HISTORY AND POLITICAL SCIENCE.

Professor HODDER.

Professor BECKER.

Associate Professor PATTERSON.

Associate Professor DYKSTRA.

Assistant Professor CRAWFORD.

Assistant Professor DAVIS.

Mr. STREETER, Fellow in American History.

EQUIPMENT.—The University library is supplied with all the important secondary authorities and with a considerable amount of source material. The latter includes the *Monumenta Germaniæ Historica*, the *Scriptores Rerum Italicarum*, the *Parliamentary History* and *Hansard's Debates*, the *Journals of the Lords and Commons*, the *British Statutes at Large*, the *Reports of the English Historical MSS. Commission*, and several series of the *Calendars of State Papers*. The library also contains such periodical publications as the *Annual Register*, *Gentleman's Magazine*, *Niles's Register* and *De Bow's Review*. The sets of congressional debates, *American State Papers* and *Kansas state documents* are complete. The set of congressional documents begins with the second session of the twenty-eighth Congress. The supply of wall maps for classroom use is exceptionally large.

ADVICE AS TO CHOICE OF COURSES.—The plan of the department is to furnish general courses for long historical periods, a series of intensive courses for shorter periods, and a limited number of courses in special fields. The courses in mediæval and English history serve as an introduction to all the work of the department. The general courses in modern European and American history are suited to the needs of students who do not intend to specialize in history, and the general course in one of the two fields may be taken to advantage by those intending to specialize in the other. A reading knowledge of French and German is advantageous to upper-class students of history and political science and indispensable to graduates. Students intending to take a major in this field should, early in their course, consult the instructors in the department in regard to the best arrangement of their work.

### *History.*

1.—GREEK HISTORY. Two hours, first semester, at 10:15. The course will trace the political and intellectual development of the Greeks and also emphasize social and economic changes. Lectures, quizzes and collateral reading. Not open to students who

have entrance credit for an equivalent course. Associate Professor Patterson.

2.—ROMAN HISTORY. Two hours, second semester, at 10:15. A general survey, in which the period of the late republic and early empire receives special attention. Follows the course in Greek history. Lectures, quizzes and collateral readings. Not open to students who have entrance credit for an equivalent course. Associate Professor Patterson.

3.—MEDIÆVAL HISTORY I. Three hours, first semester, Monday and Wednesday, at 8, and a third hour by appointment. A history of Europe from the barbarian invasions to the Crusades. A fundamental course introductory to all the work in European history. Lectures, quizzes, collateral reading and reports. Associate Professor Patterson.

4.—MEDIÆVAL HISTORY II. Three hours, second semester, Monday and Wednesday, at 8, and a third hour by appointment. Covers the history of Europe from the Crusades to the beginning of the sixteenth century. Lectures, quizzes, collateral reading and reports. Continues and should be preceded by mediæval history I. Associate Professor Patterson.

5 *a* and *b*.—ENGLISH HISTORY I. First semester, *a*, three hours, at 8 and 9, and *b*, two hours, at 8 and 9. Traces the development of England, Scotland and Ireland, with emphasis upon the growth of economic, social and political institutions. Course *a* extends to 1603, and course *b* to 1485. Recitations and occasional lectures. Not open to students who have entrance credit for English history. Assistant Professor Crawford.

6*a* and *b*.—ENGLISH HISTORY II. Second semester, *a*, two hours, at 8 and 9, and *b*, three hours, at 8 and 9. Continues courses 5 *a* and *b*, and must be preceded by them. Not open to students who have entrance credit for English history. Assistant Professor Crawford.

7.—MODERN EUROPEAN HISTORY I.\* Three hours, first semester, at 11:15. A general survey of European development from 1500 to 1715. Continues the course in mediæval history. Professor Becker.

8.—MODERN EUROPEAN HISTORY II.\* Three hours, second semester, at 11:15. Continues the preceding course from 1715 to 1900. Professor Becker.

9 *a* and *b*.—AMERICAN HISTORY I. First semester, *a*, three hours, at 8 and 9, and *b*, two hours, Tuesday and Thursday, at 8. A general course, covering the period in the three-hour course to 1789 and in the two-hour course to 1763. Not open to students who have entrance credit for American history. Assistant Professor Davis.

10 *a* and *b*.—AMERICAN HISTORY II. Second semester, *a*, two hours, at 8 and 9, and *b*, three hours, at 8. Continue courses 9 *a* and *b* from 1789 and 1763, respectively, and preferably preceded by them. Assistant Professor Davis.

50.—ADVANCED GREEK HISTORY. Two hours, first semester, at 11:15. Traces political and intellectual development of the Greeks. Covers much the same ground as course 1, but is more particularly intended for students intending to teach. Not open to students who have had course 1. Associate Professor Patterson.

51.—ADVANCED ROMAN HISTORY. Two hours, second semester, at 11:15. A general survey of Roman history, covering much the same ground as course 2, but intended for more advanced students, particularly for those intending to teach. Not open to students who have had course 2. Associate Professor Patterson.

52.—MEDIÆVAL CULTURE. Two hours, first semester, at 9. A survey of the intellectual development of Europe from Augustine to Dante, including such subjects as mediæval literature, scholasticism, the universities, architecture, and the rise of the vernacular languages. Must be preceded by courses 3 and 4. Associate Professor Patterson. (Not given in 1912-'13.)

53.—MEDIÆVAL INSTITUTIONS. Two hours, first semester, at 9. Growth of political and ecclesiastical institutions during the feudal period and a detailed analysis of the organization of society in the twelfth and thirteenth centuries. Must be preceded by courses 3 and 4. Associate Professor Patterson.

54.—THE ITALIAN RENAISSANCE. Two hours, second semester, at 9. A survey of the political, social, economic, intellectual and artistic development of the Italian people from the fourteenth to the sixteenth centuries. Must be preceded by courses 3 and 4. Associate Professor Patterson. (Not given in 1912-'13.)

55.—THE PROTESTANT REVOLT. Two hours, second semester, at 9. After a review of the social, economic and intellectual antecedents of the movement in Germany, the career of Luther and the progress of the revolt to the Peace of Augsburg will be traced. Must be preceded by courses 3 and 4. Associate Professor Patterson.

56.—ENGLISH INSTITUTIONS I. Two hours, first semester, at 10:15. Treats of the foundations of parliament, central and local government, the judiciary, feudalism, manorial system and guilds, to 1485. Lectures, recitations and collateral reading. Assistant Professor Crawford. (Not given in 1912-'13.)

57.—ENGLISH INSTITUTIONS II. Two hours, second semester, at 10:15. Covers the Tudor absolutism, the Reformation, the struggle between the crown and parliament, and the development of parliamentary government, with special emphasis upon the nineteenth century. Lectures, recitations and collateral reading. Continues and must be preceded by English institutions I. Assistant Professor Crawford. (Not given in 1912-'13.)

58.—HISTORY OF THE ENGLISH COMMON LAW I. Two hours, first semester, at 10:15. An historical treatment of the general principles of the status of persons, of real and personal property, of legal obligations, of crimes and misdemeanors, of civil and criminal procedure, and of the growth of the judiciary in England



in mediæval and modern times, and of the influence of those principles in this country. This course is primarily designed for students intending to enter law, journalism or business. Text-book, lectures and assigned reading. Assistant Professor Crawford.

59.—HISTORY OF THE ENGLISH COMMON LAW II. Two hours, second semester, at 10:15. Continuation of and must be preceded by course 58. Assistant Professor Crawford.

60.—EUROPE IN THE EIGHTEENTH CENTURY. Two hours, first semester, at 1:30. Devoted mainly to a study of the institutions of France under the Old Régime, and of the movement for reform prior to the French Revolution. Open to students who have had course 8 and to others by permission of the instructor. Designed as an introduction to course 61. Professor Becker.

61.—FRENCH REVOLUTION. Two hours, second semester, at 1:30. A study of revolutionary movements and institutional changes in France, 1789-1804. Open to students who have had either course 8 or course 60, and to others upon permission of the instructor. Professor Becker.

62.—EUROPE IN THE NINETEENTH CENTURY I. Three hours, first semester, at 1:30. The history of the rise and overthrow of the Napoleonic empire and of the period of the Restoration. Open to students who have had either course 8 or course 61, and to others upon permission of the instructor. Professor Becker.

63.—EUROPE IN THE NINETEENTH CENTURY II. Three hours, second semester, at 1:30. History of Europe with special emphasis upon the liberal régime in England and France, 1830-'48, the revolutionary movement of 1848, the second empire in France, and the reconstruction of Europe, 1860-'76. Open to students who have had either course 8 or course 62, and to others upon permission of the instructor. Professor Becker.

64.—AMERICAN COLONIAL HISTORY. Three hours, first semester, at 2:30. This course covers the discovery of America, the period of Spanish and French exploration, and the origin and development of the English colonies. Political science 52 may be taken to advantage at the same time. Professor Hodder.

65.—THE REVOLUTION AND THE CONSTITUTION. Three hours, second semester, at 2:30. A study of the causes and results of the American Revolution and of the formation of the constitution. A continuation of course 58, but not necessarily preceded by it. Professor Hodder.

66.—PRESIDENTIAL ADMINISTRATIONS I. Five hours, first semester, at 3:30. The political and constitutional history of the United States from 1789 to 1840. A topical treatment of the most important phases of American history. Open to Seniors. Should be preceded by political science 52. Professor Hodder.

67.—PRESIDENTIAL ADMINISTRATIONS II. Five hours, second semester, at 3:30. The political and constitutional history of



the United States from 1840 to 1876. Treats the causes and results of the Civil War. Continuation of course 60. Professor Hodder.

68.—HISTORICAL METHOD. Two hours, first semester, at 2:30. A study of historical scholarship since the Renaissance. Designed for advanced and graduate students specializing in history. Professor Becker.

*Political Science.*

1.—AMERICAN GOVERNMENT.\* Five hours, first semester, at 10:15 and 11:15, and repeated the second semester, at the same hours. A systematic study of the development and structure of American government, national, state and local, with emphasis upon actual workings. Associate Professor Dykstra.

50.—INTRODUCTION TO POLITICAL SCIENCE. Three hours, first semester, at 9. Deals with the fundamental principles of political science: the theory of the state, its origin, development, powers and organization; the classification of states, and questions of law, rights and citizenship. Associate Professor Dykstra.

51.—EUROPEAN GOVERNMENT. Three hours, second semester, at 11:15. An examination of the constitutions and political systems of the leading European states. Should be preceded by course 50. Assistant Professor Davis.

52.—AMERICAN CONSTITUTIONAL LAW. Two hours, first semester, at 2:30. A study of the judicial construction of the constitution of the United States from the political rather than from the legal standpoint. Recitations. Professor Hodder.

53.—INTERNATIONAL LAW. Two hours, second semester, at 2:30. A statement of the principles of public international law, illustrated by cases drawn from American diplomatic history. Professor Hodder.

54.—GOVERNMENT OF DEPENDENCIES. Two hours, first semester, at 11:15. A study of the principal colonial systems and of present questions in colonial administration. Assistant Professor Davis.

55.—MUNICIPAL GOVERNMENT. Three hours, second semester, at 9. A comparative study of the government of cities in Europe and America, their relation to the central government, their organization and administration. Associate Professor Dykstra.

HOME ECONOMICS.

Professor DAY.  
—, Instructor.

EQUIPMENT.—The department has six rooms in the basement of Fraser Hall, attractively furnished. Three more are to be furnished next year for the textile and clothing courses. In the foods laboratory each student is supplied not only with ordinary cooking utensils, but with thermometers and balances, to allow

of making work accurate, and with chemical equipment and microscopes for a fundamental study of the properties of food materials. A small dining room and kitchen are equipped for use in studying dietetic principles. The standard books on the subject are in the library.

**ADVICE AS TO CHOICE OF COURSES.**—Students who plan to take work in the department should notice carefully the prerequisites for the various courses and make in time the proper preparation in science and art. Students able to take only one course in the department should take course 80 if they wish a broad outlook on the problems of home economics; or, if they prefer a more detailed study of one phase of the work, course 50.

**50.—PREPARATION OF FOODS.** Five hours, first semester, 8 to 9, two days, and 8 to 10, or 10:15 to 12:15, three days. An experimental study of the properties of different classes of nutrients, of different leavening agents, and means of preserving food, with applications of this knowledge in the preparation of food. Must be preceded by elementary physics and elementary chemistry.

**51.—DIETETICS.** Three hours, first semester, at 3:30. A study of foods from the standpoint of the needs of the body; the function of different classes of foods; food equivalents; food habits and dietary standards as influenced by age, sex, size, occupation and various pathologic conditions. The laboratory work includes the weighing out of 100 calories portions of different foods, practice in both weighing and estimating the food of each student in the class for given periods, and the planning, preparing and serving of meals to satisfy different dietetic conditions. Must be preceded by course 50, physiology 1, and after 1912-'13 by chemistry 66. Professor Day.

**52.—SPECIAL PROBLEMS IN FOOD PREPARATION AND DIETETICS.** Five hours, second semester. A critical study of common theories and practice of food preparation and dietetics, with the investigation of some special problem by each student. Prerequisites, courses 50 and 51, chemistry 1, 53 and 66, botany 1, 2 and 55. Professor Day.

**53.—SELECTION AND ECONOMIC USES OF FOODS.** Three hours a week, one class and two laboratory periods, second semester. Principles of marketing, domestic storage, and the planning of meals to prevent waste, give variety, and regulate cost. Must be preceded by course 50 and chemistry 53.

**60.—HOUSE SANITATION.** Two hours, second semester. A study of the building, furnishing and care of the house from the standpoint of health. Must be preceded by chemistry 52. Should be preceded by botany 55. Professor Day.

**70.—PLAIN SEWING AND GARMENT MAKING.** No credit in the College. First semester. This course is offered because the majority of students have not had the opportunity of taking it in the high school and it is a prerequisite of course 72. Principles and practice in hand and machine sewing, drafting and making simple garments.

71.—TEXTILES. Three hours, first semester, Monday and Wednesday, 10:15 to 12:15; Friday, 11:15 to 12:15. A study of the production and manufacture of textiles from the standpoint of the consumer, the properties and uses of the different textile fibers and fabrics, tests for adulterations, principles of cleaning fabrics. Must be preceded by chemistry 1, and after the year 1912-'13 by chemistry 52 and 66 also.

72.—SELECTION AND MANUFACTURE OF CLOTHING. Five hours, two class and three laboratory periods, second semester. A study of the history of costumes, the psychology of fashion, economic problems of the construction of clothing at home as compared with the buying of the commercial product, hygienic factors, the economic and sociological phases of the clothing industry and the responsibility of the consumer. Must be preceded by course 70 or equivalent, and design 50 and 54.

80.—HOME ADMINISTRATION. Three hours, second semester. A brief history of the changes that have come in the work of women in the home, the economic and sociological value of home making, the organization of the household, division of the income, general principles of buying, household accounts, division of labor and responsibility in the home, system and methods in housework, labor-saving devices, means of recreation in the home. Should be preceded by zoölogy 1 or physiology 1, and economics 1 or sociology 50. Professor Day.

ITALIAN. (See Romance Languages and Literatures.)

## JOURNALISM.

Professor THORPE.

Assistant Professor FLINT.

Mr. MURRAY, Instructor.

Mr. HARGER, Lecturer.

Men and women intending to enter newspaper work as a profession or as a stepping-stone to higher literary endeavor are here given the opportunity for that specialized training which has long been accorded other professions. The department offers technical courses in the Sophomore, Junior and Senior years, makes requirements as to preparatory courses in the Freshman year, and recommends supplementary courses to be pursued during the four years.

The aim of the department is to bridge over the two extremes in education—the German conception of specialization and the English idea of culture. Three-fourths of the student's time will be given up to purely liberal arts courses—history, English, political science, philosophy and psychology—yet the half-dozen journalism courses will send him out with a profession. This appeals to high-school graduates who wish for more culture, but who feel that they must choose their vocation at once and begin specialization, thus sacrificing breadth for strength.

PRACTICAL WORK. The *University Daily Kansan*, published by students of the University, affords every opportunity for students to put the theory of the classroom into practice. From



reporter to editor-in-chief, the student learns at first hand the organization of the newspaper office, becomes familiar with the mechanical, economic and ethical problems, and acquires speed and accuracy in reportorial work and editorial supervision.

**EQUIPMENT.** The laboratory of the department has all the facilities that go to make up a modern "back office." It is equipped with type-setting machines, a linotype and monotype, a complete composing room, a book and newspaper press, and a battery of jobbers. An engraving plant and bindery will be installed this summer.

Thirty-six metropolitan dailies, representing the great newspaper personalities of the world, are received, together with the leading national weeklies and magazines. Five hundred Kansas papers also reach the laboratory regularly. These current periodicals are the textbooks of the various classes.

**LECTURES.** Newspaper publishers and writers appear regularly as lecturers before classes. Experts in advertising, circulation management and business management give single lectures or short lecture courses.

#### DESCRIPTION OF COURSES.

1.—**THE NEWSPAPER.** First semester, three hours, at 10:15 and 11:15. Prerequisite, English 1 and 2. Materials and methods. The news story. The human-interest story and its kinship to the short story. The feature. The editorial. Gathering campus news and practice in handling the above forms. Professor Thorpe.

**THE NEWSPAPER.** Second semester, three hours, at 10:15 and 11:15. A continuation of journalism 1. Organization of the office; function of departmental heads, editor-in-chief, managing, news, city and telegraph editors; subeditors, financial, sporting, society, etc.; copy-readers, reporters. The relation of the circulation and advertising departments to the editorial. The press associations; the special correspondent; women in newspaper work; the Sunday edition; newspaper photography and cartooning; law of libel and copyright; tainted news—political and advertising. Practical work in reporting and copy-reading. Professor Thorpe.

3.—**COMPARATIVE JOURNALISM.** First semester, two hours, at 11:15. Must be preceded or accompanied by journalism 1. Intensive study of great newspaper personalities, including twenty-four newspapers representative of all types in American journalism, with auxiliary lectures on journalism in England, France, Germany, and the Orient. Assistant Professor Flint.

4.—**HISTORY OF AMERICAN JOURNALISM.** Second semester, two hours, at 11:15. Must be preceded or accompanied by journalism 2. A comprehensive view from the early beginnings in Massachusetts, through the succeeding periods, to the present. Special studies of the careers of great American editors and of such topics as the influence of mechanical inventions, sensationalism, commercializing influences, etc. Assistant Professor Flint.



51.—THE SHORT STORY. First semester, three hours, at 8. The relation of manner to material in newspaper work, using the short story to illustrate the value of form in the news, human-interest and feature stories, and the editorial. A historical study of the short-story form, from the crude attempts at narrative of the early Hebrew, Egyptian and Arabian tales, through the *Gesta Romanorum*, Apulieus, Bocaccio, Æsop and Le Fontaine, Chaucer, the Grimm brothers and Anderson, Hoffman, Zschokke, Merimee, Gautier, Daudet, Balzac, Voltaire, Scott, Addison, Irving, Poe, Hawthorne, Turgeneff, Stevenson, etc., to De Maupassant, Conan Doyle, "O. Henry," and Kipling. Professor Thorpe.

52. THE SHORT STORY. Second semester, three hours, at 8. A critical study of representative short stories; with practical work of gathering campus materials, constructing and sketching plots, delineating and developing characters. Lectures on the qualifications for authorship; talent and training; preparing the manuscripts and finding a market; the short story's kinship to the human-interest story. Professor Thorpe.

53.—INTERPRETATION OF THE NEWS. First semester, two hours, at 10:15. Editorial writing; a study of current events in politics, science and discovery, religion and ethics, literature and art, drama and music. The object of the course is to train students to seize upon the essential of daily events and comment on them intelligibly and intelligently. Students will prepare weekly dummy of world's news after manner of *Literary Digest* and the *Independent*, and a monthly resumé after manner of *Current Literature and Review of Reviews*. Assistant Professor Flint.

54.—INTERPRETATION OF THE NEWS. Second semester, two hours, at 10:15. Continuation of course 53, with emphasis upon practical work of writing editorial matter for publication.

55.—ADVERTISING. First semester, three hours, at 11:15. A study of the principles of effective newspaper, magazine, billboard, street-car and novelty advertising, and practice in applying these principles through the preparation of advertising "copy" and the planning of advertising campaigns. Advertising regarded as a science based on psychology. The creative power of publicity. Good and bad advertising copy. Pictorial advertising. Mail-order and "follow-up" systems. "Keying" advertisements, or the mathematics of returns. Assistant Professor Flint.

56.—ADVERTISING. Second semester, three hours, at 11:15. A repetition of course 55.

57.—NEWSPAPER ADMINISTRATION. Second semester, two hours, at 9. A study of the business side of newspaper publishing, designed to familiarize the student with the equipment of a newspaper plant, the expenses of publishing a paper, its sources of income, and the operation of a job-printing establishment. Practical experience in keeping the records of a newspaper office and in planning and executing measures to increase cir-

culatation and advertising. A course for the student who expects to own a newspaper or to work in the business departments. Assistant Professor Flint.

59.—EDITORIAL PROBLEMS AND POLICIES. First semester, three hours. Ethics of journalism, problems of the editor, his relation to the public, to his readers, and to himself; the managing editor, outlining news campaigns; the news editor, his editorial capacity in display, quantity and position of news; and kindred problems. Lectures on class journalism, the varied appeal; the trend of modern journalism. Professor Thorpe.

60.—EDITORIAL PROBLEMS AND POLICIES. Second semester, three hours. Continuation of 57. Professor Thorpe.

61.—EDITORIAL PRACTICE. First semester, two hours. Practical work in collecting, preparing, and editing matter for dailies, weeklies and class periodicals. Assistant Professor Flint.

62.—EDITORIAL PRACTICE. Second semester, two hours. Continuation of 59. Assistant Professor Flint.

63.—THE MECHANICS OF PRINTING. Both semesters, three hours. Two lectures and eight hours laboratory weekly. Students are instructed in faces and value of type by actual work in composing room; taught to set type, make up and lock up forms, estimate costs; judge quantities and qualities of paper, inks, read proof, etc. This class will work on the mechanical end of the University publications. Mr. Murray.

64.—THE ART OF PRINTING. Both semesters, two hours. Two lectures and five hours laboratory. Lectures on history and development of printing, with practical work in designing advertisements, title pages, etc., etc., and study of color schemes. Mr. Murray.

NOTE.—The above courses in printing are designed, first, to give the student a working knowledge of the mechanical department of a newspaper, that he may be better fitted for editorial supervision; second, to equip better those students who plan to own country papers; third, to reinforce rhetorical principles of mass, proportion, accuracy, emphasis, contrast, harmony, unity and variety, by practical work with type faces.

## LATIN LANGUAGE AND LITERATURE.

Professor WALKER.  
Associate Professor OLIVER.  
Assistant Professor MURRAY.  
Miss GILCHRIST, Fellow.

EQUIPMENT.—The department is well supplied with wall maps, books of reference and supplementary reading for all courses, photographs, and a large collection of antiquities illustrating many phases of Roman life. Its library equipment includes the Corpus of Latin Inscriptions and complete sets of all important classical journals. In addition to the general illustrative material of the classical museum, the department has about 750 large mounted photographs and many smaller unmounted ones. These are supplemented by a considerable collection of bronze, marble, and terra cotta antiquities.

ADVICE AS TO CHOICE OF COURSES.—Those who intend to take only five hours of Latin to satisfy a group requirement must take course 3 if they have entered with only three units of Latin. If they have entered with four units, they may select any five hours out of courses 4, 5, and 6. Those who wish to secure either a recommendation as teacher of Latin or a teacher's diploma in Latin must elect at least twenty-five hours in the department of Latin beyond course 3; courses 4 and 12 must be included. Other courses especially recommended to those who intend to teach are 6, 8, 9, 11, 50, 57, 58, 59, education 87, and the course in ancient history given by the department of European history. Those who wish to do the best work in Latin will need, in addition to a greater amount of Latin, some Greek and a reading knowledge of German.

PREPARATORY LATIN.—Students who are admitted to the University with entrance deficiencies in Latin must make good their deficiencies either in the Lawrence high school or in the Oread school. In the latter courses are organized in *Beginning Latin*, *Cæsar*, *Cicero*, and *Preparatory Composition*. Each of the first three classes meets five times a week throughout the year. The class in composition meets three times a week throughout the first semester, and is required of all who enter the University deficient in Latin composition. An extra fee is required for all these classes. Students who make up entrance conditions under private tutors will be examined by the department.

1.—CICERO'S ORATIONS I. Three hours, first semester, at 8. The four orations against Catiline, and exercises in composition. This course gives college credit, and is open only to those who enter with fifteen units of entrance credit. It is required of those whose fifteen units include neither three units of German nor a third unit of Latin. It is open to those who enter with three units of German and two units of Latin and to those who present Vergil instead of Cicero as the third unit of Latin. Assistant Professor Murray.

2.—CICERO'S ORATIONS II. Two hours, second semester, at 11:15. The orations for the Manilian Law and for Archias, and exercises in composition. Open on the same conditions as course 1, and required to complete the unit when course 1 is required. Associate Professor Oliver.

3.—VERGIL'S ÆNEID (six books). Five hours, first semester, at 11:15; and second semester, at 9. With the study of mythology and careful practice in metrical reading. The chief stress will be laid on the literary side of the work. Open only to those who have had three units of Latin, not including Vergil. Associate Professor Oliver.

4.—CICERO (De Senectute). Three hours, first semester, at 9 and 11:15; and second semester, at 8. With prose composition and a thorough review of the grammar. Open to those who have had four units of Latin, recommended to all who expect to take further courses in Latin, and required of all who expect to prepare for teaching Latin. First semester, at 9, Associate



Professor Oliver; at 11:15, Assistant Professor Murray. Second semester, at 8, Assistant Professor Murray.

5.—LIVY (one book). Two hours, first semester, at 9 and 11:15; and second semester, at 8. This course is intended to accompany course 4, but may be omitted by well-prepared students. First semester, at 9, Associate Professor Oliver; at 11:15, Assistant Professor Murray. Second semester, Assistant Professor Murray.

6.—HORACE (Odes). Three hours, first semester, at 9; and second semester, at 11:15. With careful practice in metrical reading. The chief stress is laid on the literary side of the work. First semester, Assistant Professor Murray; second semester, Associate Professor Oliver.

7.—TERENCE (two plays). Two hours, second semester, at 11:15. Must be preceded by course 4. Intended to accompany course 6. Those who must choose between 6 and 7 are advised to take 6. Those who elect it when qualified to elect course 51 will be required to read an additional play. Professor Walker.

8.—CICERO'S LETTERS. Three hours, first semester, at 10:15. The chief stress is laid on the historical points involved, so that the student gets a good knowledge of the period in which Cæsar and Cicero lived. Must be preceded by five hours beyond course 3. Professor Walker.

9.—HISTORY OF ROMAN LITERATURE. Two hours, first semester, at 10:15. Mackail's Latin Literature, supplemented by lectures and assigned reading in English translations of the more important authors. Open to all undergraduates except Freshmen, without regard to their Latin preparation. Associate Professor Oliver.

10.—HORACE (Satires and Epistles). Two hours, second semester, at 10:15. Must be preceded by eight hours beyond course 3. Assistant Professor Murray.

11.—ROMAN PRIVATE LIFE. One hour, second semester, Monday, at 10:15. Johnston's Private Life of the Romans, supplemented by occasional lectures and the use of illustrative material. Must be preceded by five hours beyond course 3. Associate Professor Oliver.

12.—PROSE COMPOSITION. Two hours, second semester, Wednesday and Friday, at 10:15. Part I or part II of Nutting's Advanced Latin Composition. Intended to accompany courses 10 and 11, but may be taken earlier by well-prepared students, the only necessary preparation being given in course 4. Required of all who wish a recommendation from the department as teachers of Latin. Professor Walker.

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50.—ADVANCED PROSE COMPOSITION. Two hours, first semester, at 1:30. Must be preceded by course 12. Professor Walker.

51.—PLAUTUS. Two hours, first semester, at 9. Must be preceded by twelve hours beyond course 3. Assistant Professor Murray.



52.—**VERGIL'S ECLOGUES AND GEORGICS.** Two hours, second semester, at 10:15. A reading course, open to Juniors, Seniors, and graduates. Must be preceded by twelve hours beyond course 3. Associate Professor Oliver.

53.—**LUCRETIUS.** Three hours, first semester, at 1:30. Must be preceded by twelve hours beyond course 3. Associate Professor Oliver.

54.—**THE ANNALS OF TACITUS.** Three hours, second semester, at 9. Must be preceded by twelve hours beyond course 3. Assistant Professor Murray.

55.—**JUVENAL.** (Not given in 1912-'13.) Must be preceded by twelve hours beyond course 3.

56.—**LITERATURE OF THE EMPIRE.** (Not given in 1912-'13.) A study of the history of literature under the empire, supplemented by the reading of portions of the most important works. Must be preceded by twelve hours beyond course 3.

57.—**ROMAN POLITICAL INSTITUTIONS.** Three hours, first semester, at 10:15. A study of the development and form of the Roman governmental system through the republic and the early empire. The course will be conducted by lectures and assigned readings. Prerequisite, three years of preparatory Latin. Assistant Professor Murray.

58.—**CÆSAR'S GALLIC CAMPAIGNS.** (Not given in 1912-'13.) A critical study of the Gallic War, with especial reference to military, historical, and geographical questions. The course is intended primarily as an introduction to the methods of the graduate seminar, and secondarily as a practical course for teachers. Open to Seniors.

59.—**VERGIL.** Three hours, second semester, at 1:30. A rapid survey of the contents of the *Æneid*, with a study of the motives of the poem and of Vergil's method of handling his material. A critical study of a few passages which involve difficulties of interpretation or of textual criticism. It is recommended that this course be preceded or accompanied by course 52. Open to Seniors. Professor Walker.

## LAW.

The following courses in the School of Law are open to College Seniors, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Law as well as in the College and will be admitted to the classes as first-year law students.

51.—**ELEMENTARY LAW.** Two and one-half hours, first half of first semester, daily, at 11:15. Associate Professor Humble.

52.—**AGENCY.** Two and one-half hours, second half of first semester, daily, at 10:15. Associate Professor Humble.

53.—**CONTRACTS.** Five hours, first semester, at 9. Professor Green.

54.—BAILMENTS. Two and one-half hours, first half of second semester, daily, at 11:15. Associate Professor Humble.

55.—TORTS. Two and one-half hours; *a*, second half of first semester, Tuesday and Thursday, at 11:15; *b*, Monday, Wednesday, and Friday, at 9. Professor Hill.

56.—SALES. Two and one-half hours, first half of second semester, daily, at 10:15. Professor Burdick.

57.—DAMAGES. Two and one-half hours, second half of second semester, daily, at 10:15. Associate Professor Humble.

58.—DOMESTIC RELATIONS. Two and one-half hours, second half of second semester, daily, at 11:15. Professor Burdick.

### MATHEMATICS.

Associate Professor VAN DER VRIES.

Associate Professor ASHTON.

Assistant Professor MITCHELL.

Assistant Professor WHITE.

Assistant Professor JORDAN.

Mr. FRIZELL, Instructor.

Miss MACGREGOR, Instructor.

Mr. WHEELER, Instructor.

Mr. HASSLER, Instructor.

Mr. NELSON, Instructor.

Mr. FISCHER, Fellow.

EQUIPMENT.—The department of mathematics has a good collection of models in wood, plaster of Paris, and strings illustrating various theorems of geometry and analysis. The library contains about 2000 volumes relating to mathematics. The department also has in its possession a large collection of elementary textbooks, known as the Newson Collection (a gift by Mrs. H. B. Newson from the library of the late Professor Newson), which is of especial value to the prospective teachers, affording an excellent opportunity for comparing various methods of presentation.

ADVICE AS TO CHOICE OF COURSES.—The courses in the department are arranged to meet the needs of four classes of students, as follows: (1) Those who wish to study mathematics for general culture; (2) those who wish to become teachers of mathematics in secondary schools; (3) those who wish to take mathematics in preparation for advanced work in other departments; (4) those who wish to specialize with a view to finding a career in teaching and research in mathematics. The courses are arranged in three groups: The elementary group, open to all undergraduates; a more advanced group, open to Juniors, Seniors and graduate students; and the graduate courses, open only to graduate students. (For a list of the latter courses see the announcements of the Graduate School.) A short major (thirty hours) should include courses 2 to 8 and thirteen hours chosen from the remaining courses open to undergraduates; a long major (forty hours) should consist of courses 2 to 8 and twenty-three hours from the remaining courses open to undergraduates.

(1) For general culture all or a part of courses 2 to 9 in

proper sequence are recommended; they may be taken two at a time (*i. e.*, 2 and 3, 4 and 5, etc.).

(2) Those wishing to qualify for teachers of mathematics in high schools should complete courses 2 to 9 (twenty hours) and at least ten hours in physics, astronomy, the history and pedagogy of mathematics, and practice teaching in the School of Education.

(3) Students whose major work is in another department where mathematics is needed should consult with the head of the department in question regarding the mathematical courses he should elect.

(4) Students desiring to specialize in mathematics should take courses 2 to 9 and then consult with the head of the department as to selection of additional courses. Such students are advised to gain a reading knowledge of French and German as early in their course as possible. Usually for this purpose French 1 and 2 and German 1-4 are sufficient; Italian 1 and 2 will also be a great help.

In all cases students should consult with the instructors in the department before electing the advanced courses.

2.—COLLEGE ALGEBRA. Three hours, both semesters—first semester, at 8, 9, 10:15, 11:15, and 2:30; second semester, at 8, 9, and 10:15. Rapid review of elementary algebra; graphic representation; logarithms; determinants; theory of equations; Horner's method of approximation. Miss MacGregor and assistants.

3.—PLANE TRIGONOMETRY. Two hours, both semesters—first semester, at 8, 9, 10:15, 11:15, and 2:30; second semester, at 8, 9, and 10:15. The six trigonometric functions; principal formulas of plane trigonometry, trigonometric equations, solution of triangles and practical problems. Miss MacGregor and assistants.

4.—ANALYTICAL GEOMETRY I. Two hours, both semesters—first semester, at 9 and 10:15; second semester, at 9, and 11:15. The straight line, circle, elements of parabola, ellipse and hyperbola. Prerequisites, courses 2 and 3. Assistant Professor White and assistants.

5.—CALCULUS I. Three hours, both semesters—first semester, at 9 and 10:15; second semester, at 9 and 11:15. Differential calculus; fundamental principles; derivatives; applications to geometry and mechanics; maxima and minima; indeterminates. Open to students who have completed or are taking course 4. Assistant Professor White and assistants.

6.—ANALYTICAL GEOMETRY II. Two hours, both semesters—first semester, at 11:15; second semester, at 10:15. Conic sections; polar coördinates; loci problems; higher plane curves. Prerequisite, course 4. Assistant Professor Mitchell and assistants.

7.—CALCULUS II. Three hours, both semesters—first semester, at 11:15; second semester, at 10:15. Integral calculus; integration; definite integrals; applications to lengths, areas, and volumes. Prerequisites, courses 5 and 6; may be taken at the



same time with course 6. Assistant Professor Mitchell and assistants.

8.—CALCULUS III. Two hours, second semester, at 9. Applications of the calculus to curves and surfaces; series, partial differentiation and integration; and a thorough training in the use of the definite integral as the limit of a sum. Prerequisite, course 7. Assistant Professor White.

9.—MODERN GEOMETRY I. Three hours, second semester, at 9. Point and line coördinates; principles of duality; methods of abridged notation, reciprocal polars and central projection. Prerequisites, courses 2 to 7. Associate Professor Van der Vries.

50.—ANALYTIC MECHANICS. Three hours, second semester, at 10:15. This course is recommended to those who desire a more thorough knowledge of the integral calculus and its practical applications. It will include center of gravity, moments of inertia, and the general theory of rectilinear and curvilinear motion in space. A large number of practical problems will be solved. Prerequisites, courses 2 to 7. Students are also advised to precede this course by physics 50, which will be counted for credit in the mathematics group. Associate Professor Van der Vries.

51.—DIFFERENTIAL EQUATIONS. Three hours, first semester, at 10:15. Ordinary differential equations; integration in series; partial differential equations; applications to geometry and physics. Prerequisites, courses 2 to 7. Assistant Professor White.

52.—ADVANCED CALCULUS I. Two hours, first semester, at 11:15. Elliptic integrals; Jacobian elliptic functions; applications to geometry and physics. Prerequisites, courses 2 to 7. Associate Professor Ashton.

53.—ADVANCED CALCULUS II. Three hours, second semester, at 11:15. Critical review of the fundamental notions of calculus; expansion in series; definite integrals; multiple integrals; line, surface and space integrals; functions defined by definite integrals; applications to geometry and physics. Prerequisites, courses 2 to 7. Associate Professor Ashton.

54.—SOLID ANALYTICAL GEOMETRY. Two hours, second semester, at 11:15. Solid analytical geometry of the straight line, plane, and the conicoids. Prerequisite, course 7. Assistant Professor White.

55.—HIGHER ALGEBRA I. Three hours, first semester, at 11:15. A study of selected topics in Fine's College Algebra. The idea of a number field; the development of the number system of algebra; definition of irrational number; fundamental theorems on limits; convergence of infinite series; power series; operations with infinite series; binomial, exponential and logarithmic series; infinite products; solution of cubic and biquadratic equations; theory of equations; Taylor's theorem for polynomials; test for multiple roots. Prerequisites, courses 2 to 7. Assistant Professor Mitchell.

56.—HIGHER ALGEBRA II. Two hours, second semester, at



11:15. Selected topics in Bocher's Introduction to Higher Algebra. Fundamental properties of polynomials; properties of determinants; theory of linear dependence; systems of linear equations; linear transformations; multiplication of matrices; bilinear forms; properties of polynomials in general. Prerequisites, courses 2 to 7. Assistant Professor Mitchell.

57.—COMPLEX NUMBERS. Two hours, second semester, at 10:15. Analytic and geometric properties of complex numbers; conditions of functionality; integration; circular transformations; applications. Prerequisite, course 55. Associate Professor Ashton.

58.—GALOIS'S THEORY OF EQUATIONS. Two hours, first semester, at 10:15. The application of the method of groups to the study of algebraic equations. Prerequisite, course 55. Associate Professor Ashton.

59.—MODERN GEOMETRY II. Three hours, first semester, at 9. Homogeneous coördinates; anharmonic ratio; properties of complete quadrangle and complete quadrilateral; pencils and ranges of conics; collineations and introduction to continuous groups of collineations in the plane. Prerequisite, course 9. Associate Professor Van der Vries.

60.—HISTORY OF MATHEMATICS. Two hours, first semester, at 9. A topical treatment of the most important movements in the development of the science. Prerequisites, courses 2 to 7. Assistant Professor Mitchell.

## MEDICINE.

The College student who has completed the Sophomore year and desires to secure the degree of bachelor of arts and doctor of medicine can complete the first and second years of the medical curriculum and finish the College course at the same time. To do this he must register in both the College and the School of Medicine and select from the curriculum of the School of Medicine those courses which are offered by the various departments of the College. These courses, common to both schools, aggregate thirty-five hours. He will also be admitted to medical courses, not given by the College, aggregating twenty-five hours. Having thus secured credit for sixty hours, he will be entitled to the degree of bachelor of arts.

The courses which are included in the curriculum of the Medical School and which are offered by the various departments of the College are as follows: Organic Chemistry, 5 hours; Histology, 5 hours; Physiological Chemistry, 5 hours; Embryology, 2 hours; Physiology, 3 hours; Bacteriology, 5 hours; Physiology, 5 hours; Toxicology, 1 hour; Neurology, 4 hours.

The following courses given in the School of Medicine are open to College Juniors and Seniors with the approval of the Dean of the College:

51.—DESCRIPTIVE ANATOMY. Eight hours, first semester, daily, 8 to 12:15.

52.—DESCRIPTIVE ANATOMY. Eight hours, second semester, daily, 8 to 12:15.

53.—GENERAL PATHOLOGY. Five hours, daily, second semester, 1:30 to 3:30.

54.—HYGIENE. Two hours, daily, second semester, at 3:30.

55.—PHYSICAL DIAGNOSIS. Two hours, second semester.

#### MINERALOGY. (See Geology.)

#### MUSIC.

Courses 50 and 51 are College courses and are open to all Juniors and Seniors.

Courses 52 to 60 are courses in the School of Fine Arts and are open to College Seniors, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to these courses must register in the School of Fine Arts as well as in the College and will be admitted to the classes as fine arts students.

50.—MUSICAL APPRECIATION. Two hours, first semester, at 10:15. A course for those who wish to learn to understand music as listeners, without necessarily being performers. The different styles of music are explained and illustrated, with special reference to the University concerts. Professor Skilton.

51.—DEVELOPMENT OF MUSIC. Two hours, second semester, at 10:15. Detailed examination of famous composers, with reference to the history of their time and country. Professor Skilton.

52.—HARMONY. Two hours, first semester, at 2. Professor Skilton.

53.—HARMONY. Two hours, second semester, at 2. Continuation of course 52. Professor Skilton.

54.—HARMONY. Two hours, first semester, Tuesday and Friday, at 3. Professor Skilton.

55.—HARMONY. Two hours, second semester, Tuesday and Friday, at 3. Professor Skilton.

56.—COUNTERPOINT. One hour, first semester, Tuesday, at 1. Professor Preyer. Prerequisite, courses 52-55. Must be accompanied by course 58.

57.—COUNTERPOINT. One hour, second semester, Tuesday, at 1. Professor Preyer. Must be accompanied by course 59.

58.—MUSICAL COMPOSITION. One hour, first semester, Thursday, at 3. Professor Skilton. Prerequisite, courses 52-55. Must be accompanied by course 56.

59.—MUSICAL COMPOSITION. One hour, second semester, Thursday, at 3. Professor Skilton. Must be accompanied by course 57.

60.—INSTRUMENTATION. One hour, second semester, Wednesday, at 3. Professor Skilton. Prerequisite, courses 52-55.

## PHARMACY.

Professor SAYRE.  
Assistant Professor EMERSON.

50.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. For College and medical students. Products of physiological interest are separated from animal tissues and organs and studied in detail. The study of fats, carbohydrates, proteins, and the normal and abnormal products of animal life. Five weeks of urinalysis, embracing lectures, recitations, and laboratory work. Professor Sayre and Assistant Professor Emerson.

51.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Analysis of dietetics used in medicine, quantitative valuation of proximate constituents of foods, assay of digestive ferments, and the separation of organic principles of animal tissues, etc. Professor Sayre and Assistant Professor Emerson.

## PHILOSOPHY.

Professor TEMPLIN.  
Professor BOODIN.  
Assistant Professor ROGERS.  
Assistant Professor MITCHELL.  
Mr. DOCKERAY, Instructor.  
Mr. BROWN, Fellow.

EQUIPMENT.—The philosophical library contains about 2700 volumes, including complete sets of the leading philosophical and psychological periodicals published in the English, German and French languages. These are all available for students working in the department, and are kept in a special departmental reading room in the Library Building.

The psychological laboratory is equipped both for class work and original research.

1.—ELEMENTS OF PSYCHOLOGY.\* Three hours, both semesters, at 8, 9, and 10:15. A general study of mental processes. This course is a prerequisite to all other courses in the department, but it may be taken at the same time with courses 2, 3, or 4. It is required for admission to the School of Education. Assistant Professor Rogers, Mr. Dockeray.

2.—LABORATORY PSYCHOLOGY.\* Two hours, both semesters, at 8 to 10, 10:15 to 12:15, and 8 to 12, Saturday. Laboratory experiments analyzing and illustrating mental processes. Lectures, assigned readings, and reports. Must be preceded or accompanied by course 1. Prerequisite to courses 51, 52, 55 and 56. Mr. Dockeray.

3.—ELEMENTARY LOGIC.\* Two hours, both semesters, at 9 and 2:30. A traditional treatment of the syllogism and induction, with emphasis on the latter. Must be preceded or accompanied by course 1. Assistant Professor Mitchell.

4.—INTRODUCTION TO PHILOSOPHY.\* Three hours, first semester, at 8, 9 and 2:30. Second semester at 9 and 2:30. A brief presentation of some of the main problems of philosophy as

illustrations of the philosophical attitude toward belief and conduct. Should be preceded by elementary courses in the biological and physical sciences. Must be preceded or accompanied by course 1. Assistant Professor Mitchell.

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51.—PSYCHOLOGY OF THOUGHT. Three hours, second semester, in alternate years, at 9. A study of the processes of attention, association, imagination, memory, conception, reasoning, and belief. Experiments, lectures, assigned readings, and reports. Must be preceded by courses 1 and 2. Mr. Dockeray.

52.—FEELING AND WILL. Two hours, second semester, in alternate years; given in 1912-'13, at 9. A study of the processes of reaction, practice, instinct, feeling, emotion, effort, fatigue, and volition. Experiments, lectures, assigned readings, and reports. Must be preceded by courses 1 and 2. Assistant Professor Rogers.

53.—COMPARATIVE PSYCHOLOGY. Three hours, second semester, at 9. This course aims to present the development of mental behavior through the animal series. The work consists of lectures, assigned readings and experiments with animals. Students who show ability for advanced work will be given an opportunity for original investigation. Open to Juniors, Seniors and graduates who have had courses 1 and 2 or 1 and a satisfactory amount of any biological science. Mr. Dockeray.

54.—PSYCHOTHERAPY. Two hours, first semester, at 2:30. A study of special mental processes, such as sleep, fatigue, suggestion, hypnotism, and others, in their bearing on mental and physical health. Must be preceded by course 1. Assistant Professor Rogers.

55.—ADVANCED PSYCHOLOGY I. Three hours, first semester, by appointment. Sensation, perception and other special topics. Must be preceded by at least two previous courses in psychology. Assistant Professor Rogers and Mr. Dockeray.

56.—ADVANCED PSYCHOLOGY II. Three hours, second semester, by appointment. A continuation of course 55, not necessarily preceded by it. Assistant Professor Rogers and Mr. Dockeray.

57.—SOCIAL PSYCHOLOGY. Two hours, first semester, at 9. A study of the social consciousness, especially as shown in the psychology of the crowd and religion. Prerequisites, courses 1 and 2 or 4. Professor Boodin.

60.—HISTORY OF PHILOSOPHY. Three hours, first semester, at 10:15. This course outlines the principal movements or tendencies of Greek thought with special reference to Plato. Prerequisites, courses 1 and 3 or 4. Professor Boodin.

61.—HISTORY OF PHILOSOPHY. Three hours, second semester, at 10:15. A continuation of course 60, but not necessarily preceded by it, dealing with modern philosophy, with special reference to idealism. Professor Boodin.

62.—PHILOSOPHICAL CLASSICS. Two hours, first semester, at



10:15. This course furnishes an opportunity for a first-hand study of some of the more important works in the history of philosophy. The authors read vary with succeeding terms. Must be preceded or accompanied by course 60 or 61. Professor Boodin.

63.—PHILOSOPHICAL CLASSICS. Two hours, second semester, at 10:15. A continuation of course 62. Professor Boodin.

64.—THE THEORY OF KNOWLEDGE. Three hours, first semester, by appointment. This course deals with the problem of the relation of truth to reality with special reference to idealism, realism and pragmatism. Prerequisites, courses 1 and 60 or 61. Professor Boodin.

65.—METAPHYSICS. Three hours, second semester, by appointment. This course deals with some of the important tendencies in contemporary thinking. Prerequisites, courses 1 and 60 or 61. Professor Boodin.

66.—THE PHILOSOPHY OF RELIGION. Two hours, second semester, at 9. This course aims to interpret the religious consciousness, first by tracing the evolution of religion, and further on taking up the modern idealistic and pragmatistic interpretation of religion. Prerequisites, courses 1 and 60 or 61. Professor Boodin.

54.—ADVANCED LOGIC. Three hours, second semester, at 8. A textbook course based on Welton's Logic. Prerequisites, courses 1 and 3. Assistant Professor Mitchell.

70.—SYSTEMATIC ETHICS. Three hours, first semester, at 8. This course undertakes a critical examination into the psychological foundations of human conduct, a review of the historic ethical theories, and the development of a satisfactory ethical system. Prerequisites, courses 1 and 4. Professor Templin.

71.—PRACTICAL ETHICS. Two hours, second semester, Monday and Wednesday, at 8. The application of theoretical principles of conduct to practical problems of life. Prerequisite, course 70. Professor Templin.

72.—ESTHETICS. Two hours, second semester, at 8. An historical and constructive treatment of the problem of the beautiful, followed by an application of esthetic principles to nature and the fine arts. Prerequisites, courses 1 and 4. Professor Templin.

## PHYSICAL EDUCATION.

Professor NAISMITH.  
Associate Professor JOHNSON.  
Mr. ROOT, Instructor.  
Mr. HAMILTON, Instructor.  
Miss ABBOTT, Instructor.

For equipment, see under "Gymnasium."

ADVICE AS TO CHOICE OF COURSES.—Courses 50, 52 and 54 are designed for those who intend to teach this subject. Course 51 is arranged with reference to the course in domestic science.

1.\*\*—FRESHMAN. Men: First half semester, outdoor ath-

letics, swimming; second half semester, basket ball, diving. Women: First half semester, indoor games, swimming; second half semester, calisthenics, gymnastics, marching.

2.\*\*—FRESHMEN. Men: First half semester, calisthenics, gymnastics, marching; second half semester, outdoor games, athletics and water sports. Women: First half semester, calisthenics, gymnastics and folk games; second half semester, competitive work, swimming.

3.—SOPHOMORE. Men: First half semester, outdoor athletics, rescue swimming; second half semester, basket ball and other team games. Women: First half semester, indoor games, playground drills; second half semester, folk games, gymnastics and basket ball.

4.—SOPHOMORE. Men: First half semester, defensive sports; second half semester, squad leading, coaching, aquatic sports. Women: First half semester, gymnastics, fancy marches; second half semester, fencing, team games, rescue swimming.

Those physically qualified may elect the following in their season, in place of the foregoing: Football, baseball, tennis, basket ball, track and field athletics, hockey, and lacrosse. This work must be under the appointed coach or leader, in order to obtain credit.

Additional courses will be arranged for special work and prescribed work which can not be done in class.

Every student may receive a thorough medical and physical examination, with the results platted on a chart. Where needed, special exercises will be prescribed.

Every student using the gymnasium or who is a candidate for any University team must pass a satisfactory medical and physical examination.

5.—HYGIENE.\*\* One hour, first semester, men, Monday; women, Thursday. Lectures designed to help the students to maintain health, dealing with food, clothing, exercise, conditions conducive to study, prophylactic treatment, especially in regard to infectious and contagious diseases. Required of Freshmen.

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50.—MECHANICAL ANATOMY. Three hours, first semester, 8 to 10. The study of the bones, articulation and muscles in their relations as mechanical principles. The location of the viscera. The distribution of the principal nerves and blood vessels, and the topography of the muscles. Professor Naismith.

51.—PHYSICAL EDUCATION OF CHILDREN. Three hours, second semester, at 8. Including the growth of the child and conditions that affect its development; effect of physical, mental and emotional strain. Relation of physical condition to the development of character and mental ability; methods of obtaining the best results. Belongs to the domestic-science group and limited to women. Professor Naismith.

52.—ANTHROPOMETRY. Two hours, second semester, at 9. Medical, physical and functional examinations; tabulation and

use of the data of examinations. Prerequisite, course 50 and elementary physiology. Professor Naismith.

54.—PHYSICAL EDUCATION. Three hours, second semester, at 9. Laboratory periods by appointment. Dealing with the effects of exercise on the various systems of the body; history of the subject; prescription of exercise, and mechanical therapeutics. Prerequisite, course 50 and elementary physiology. Professor Naismith.

## PHYSICS AND ASTRONOMY.

Professor KESTER.  
Associate Professor M. E. RICE.  
Assistant Professor STIMPSON.  
Mr. T. T. SMITH, Instructor.  
Mr. ———, Instructor.

EQUIPMENT.—The department occupies Blake Hall. There are two lecture rooms, two classrooms, three large laboratory rooms and seven smaller ones, besides offices, library and reading room and an instrument repair shop. The lecture and laboratory rooms are supplied with water, gas, and electric circuits furnishing both direct and alternating current for experiments, and the basement laboratory rooms are supplied with stone piers, giving instrument supports free from vibrations. The apparatus is sufficient to show in lectures all the experiments usually given in undergraduate courses in physics and to enable the students to perform in laboratories most of the experiments described in laboratory manuals of college physics. For advanced work, the equipment includes a number of pieces of fine apparatus in light and electricity; and an instrument maker is available for making special apparatus according to the requirements of the problem in hand. The department library contains many of the best English, German and French periodicals, with bound volumes for twenty to thirty-five years. These include the *American Journal of Science*, *Annalen der Physik*, *Beiblaetter zu den Annalen der Physik*, *Journal de Physique*, *Philosophical Magazine*, *Philosophical Transactions and Proceedings of the Royal Society*, *Physical Review*, *Physikalische Zeitschrift*, *Science Abstracts*, *Zeitschrift für Instrumentenkunde*, *Zeitschrift für Physikalische und Chemische Unterricht*. The library also contains a good number of standard treatises, both elementary and advanced, as well as the collected papers of Maxwell, Faraday, Kelvin, Stokes, Rowland, Gibbs and others.

The material equipment in astronomy consists of a six-inch astronomical telescope made by A. Clark & Sons, on a portable equatorial tripod mounting; a two-inch terrestrial telescope on a portable altazimuth mounting; a two-inch transit instrument; a sextant; a spectroscope for attachment to the six-inch telescope; a chronometer; a twenty-inch celestial globe; 600 astronomical slides; star charts, atlases, maps, drawings, etc. In addition, the equipment in physics is available for demonstrations and laboratory work.

The library contains some 600 volumes, including some of the more important astronomical journals.



## PHYSICS.

1.—ELEMENTARY PHYSICS. Five hours, first semester, Monday, Wednesday, and Friday, at 9, and Tuesday and Thursday, 8 to 10. A first course in physics, intended to give a brief survey of the subject. Recitations and laboratory, with some lectures and problems. Prerequisites, algebra and plane geometry. Not open for credit to students having credit in entrance physics. Assistant Professor Stimpson.

5a.—GENERAL PHYSICS I. Mechanics and heat. Three hours, second semester, Monday, Wednesday, and Friday, at 3:30. Lectures, recitations and problems. Prerequisites, a first course in physics and some knowledge of plane trigonometry. Course 5a should be accompanied by 5b. Professor Kester and Mr. T. T. Smith.

5b.—GENERAL PHYSICS LABORATORY I. Mechanics and heat. Two hours, second semester, Tuesday and Thursday, 8 to 10, or Tuesday and Thursday, 3:30 to 5:30, or Saturday, 8 to 12. Coordinate with 5a, with the same prerequisites. Course 5b must be accompanied by or preceded by 5a. Mr. T. T. Smith.

6a.—GENERAL PHYSICS II. Sound, light and electricity. Three hours, first semester, Monday, Wednesday, and Friday, at 3:30. A continuation of course 5, with the same prerequisites. It is desirable that physics 5 precede this course, though not necessary. Course 6a should be accompanied by 6b. Professor Kester and Mr. T. T. Smith.

6b.—GENERAL PHYSICS LABORATORY II. Sound, light and electricity. Two hours, Monday and Wednesday, 8 to 10, or Tuesday and Thursday, 3:30 to 5:30, or Saturday, 8 to 12. Coordinate with 6a, with the same prerequisites. Course 6b must be accompanied by or preceded by 6a. Mr. T. T. Smith.

11.—RECENT ADVANCES IN PHYSICS I. One hour, first semester, Thursday, at 2:30. Prerequisites, courses 5 and 6 or 1E and 2E. A treatment, wherever possible in the form of experimental demonstration, of late developments in the science, such as do not receive treatment regularly in courses and in textbooks.

12.—RECENT ADVANCES IN PHYSICS II. One hour, second semester, by appointment. Continuation of course 11.

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50.—MECHANICS AND HEAT. Three hours, first semester, by appointment. Lectures and recitations. Prerequisites, courses 5 and 6, or 1E and 2E, and calculus. Professor Kester.

It is recommended that this course be followed by Mathematics 50, Analytical Mechanics, three hours.

51.—LIGHT AND RADIANT ENERGY. Three hours, second semester, by appointment. Prerequisites, courses 5 and 6, or 1E and 2E, and calculus. Offered in alternate years. Mr. T. T. Smith. (Not offered in 1912-'13.)

52.—ELECTRICITY. Three hours, first semester, at 9. Lectures, recitations and problems. Prerequisites, courses 5 and 6, or 1E and 2E, and calculus. Associate Professor M. E. Rice.



53.—**RADIOACTIVITY AND CONDUCTION OF ELECTRICITY THROUGH GASES.** Three hours, second semester, by appointment. Prerequisites, courses 5 and 6, or 1E and 2E, and calculus. Offered in alternate years. Professor Kester.

Courses 50, 51, 52 and 53 are designed to form a two-year cycle for theoretical treatment of the essentials of the subject matter of physics. The cycle is offered especially for Juniors and Seniors who are taking their major in physics. Either year of it is acceptable as a minor for graduate students who are working for the master's degree with their major in another department. An opportunity is offered in the laboratory courses 54 to 59 for experimental work which shall supplement to any desired extent the theoretical development of a given branch of the subject.

54.—**PHYSICS LABORATORY.** Mechanics and heat. Two to five hours' credit, first semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E. Professor Kester.

55.—**PHYSICS LABORATORY.** Light and radiant energy. Two to five hours' credit, second semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E, or their equivalents. Mr. T. T. Smith.

56.—**PHYSICS LABORATORY.** Electricity. Two to five hours' credit, each semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E, or their equivalents. Associate Professor M. E. Rice.

57.—**PHYSICS LABORATORY.** Radioactivity and conduction of electricity through gases. Two to five hours' credit, second semester, by appointment. Prerequisites, physics 5 and 6, or 1E and 2E, or their equivalents. Professor Kester.

Courses 54, 55, 56, 57 are coördinate with 50, 51, 52, 53, with the same prerequisites, and supplement them from an experimental point of view.

58.—**ADVANCED LABORATORY I.** Two to five hours' credit, first semester, by appointment. A continuation of courses 54 to 57; requires at least two semesters' credits in these courses. The development is supposed to make possible, during the year, a repetition of some of the classical researches in physics. Professor Kester and Associate Professor M. E. Rice.

59.—**ADVANCED LABORATORY II.** Two to five hours' credit, second semester, by appointment. A continuation of course 58. Professor Kester and Associate Professor M. E. Rice.

60.—**OPTICAL INSTRUMENTS.** Three hours, second semester, by appointment. The course is so designed as to pay special attention to the resolving power of optical instruments in general and to give an introduction to the science of spectroscopy. Mr. T. T. Smith.

61.—**ALTERNATING AND OSCILLATING CURRENTS.** Three hours, second semester, Monday, Wednesday, and Friday, by appointment. Lectures, recitations and problems. A continuation of course 52, dealing with the mathematical theory of alternating and oscillating currents and the propagation of varying electric currents in wires. Prerequisites, course 52 and some work in course 56, or equivalent, and a good working knowledge of calculus. Associate Professor M. E. Rice.

63.—**PHYSICS COLLOQUIUM I.** One hour, first semester, by appointment. The members and the advanced students of the de-

partment meet once a week to report on researches published in the journals of the science and on the progress of original investigations carried on by members of the colloquium.

64.—PHYSICS COLLOQUIUM II. One hour, second semester, by appointment. A continuation of course 63.

#### *Astronomy.*

50.—DESCRIPTIVE ASTRONOMY.\* Three hours, first term, at 9. Lectures and recitations, with occasional evenings for observation. Mr. ———.

51.—SPHERICAL AND PRACTICAL ASTRONOMY. Three hours, second term, at 9. Coördinates on the celestial sphere. Theory of instruments. Use of small or portable instruments in determining time, latitude and longitude, and in other elementary observations. Prerequisites, trigonometry, elementary physics, and descriptive astronomy. Mr. ———.

70.—INTRODUCTION TO ASTROPHYSICS. Three hours, first term, by appointment. A study of the principles, methods and instruments employed in investigating the physical conditions of celestial bodies. Lectures and laboratory work. Prerequisites: Astronomy 50, physics 5 and 6 or equivalent, and analytic geometry and calculus. Mr. ———.

71.—INTRODUCTION TO CELESTIAL MECHANICS. Three hours, second term, by appointment. Prerequisites: Astronomy 50, physics 5 and 6 or equivalent, and analytic geometry and calculus. Mr. ———.

### PHYSIOLOGY.

Professor HYDE.  
Assistant Professor SCOTT.  
Miss WALLING, Instructor.  
Mr. GRUBER, Fellow.  
Mr. FAULKNER, Fellow.

EQUIPMENT.—The physiology department is thoroughly equipped with approved modern apparatus for demonstration and experimental work. Besides a large lecture room, it possesses a department library for the use of the students, and a large laboratory that contains tables particularly designed for experimental work. The research room is fitted up with necessary tables, instruments and electrical apparatus for any kind of physiological experiments.

ADVICE AS TO CHOICE OF COURSES.—Course 1 is recommended especially to general students. Course 2 is for advanced work.

1.—ELEMENTARY PHYSIOLOGY. Five hours, both semesters, three days at 1:30, and two days from 1:30 to 3:30. The first half is a general elementary course in physiology, devoted to a study of the structure and functions of the human body, by means of lectures, demonstrations, recitations, and laboratory experiments. The second half consists in the study of the elements of hygiene and sanitation. Professor Hyde, Assistant Professor Scott, Miss Walling, and Dr. Faulkner.

2.—GENERAL PHYSIOLOGY.\* Five hours, second semester, three days at 3:30, and two days from 3:30 to 5:30. Lectures, demonstrations, recitations, and laboratory experiments. A general course in physiology designed for those who intend to teach or to specialize in the sciences. Prerequisite, course 1 or an equivalent. Professor Hyde, Miss Walling, and Dr. Faulkner.

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50.—EXPERIMENTAL PHYSIOLOGY. Five hours, either semester or both, by appointment. Investigation of special subjects. Prerequisites, courses 1 and 2. Professor Hyde.

51.—ADVANCED EXPERIMENTAL PHYSIOLOGY. Five hours, either semester or both, by appointment. Experimental physiology and original research. Professor Hyde.

52.—PHYSIOLOGY. Three hours, second half of first semester, 8 to 12:15. Recitations and lectures with demonstrations, conferences and laboratory experimental work. Required of second year medical students. Assistant Professor Scott.

53.—PHYSIOLOGY. Five hours, second semester, 8 to 11:15. A continuation of course 52. Required of second year medical students. Assistant Professor Scott.

## PSYCHOLOGY. (See Philosophy.)

## PUBLIC SPEAKING AND DEBATE.

Assistant Professor CEELE.

EQUIPMENT.—The special equipment of this department includes a collection of more than 200 books, to which carefully selected modern works dealing with debating and public addresses are added yearly. A room in Fraser Hall is specially fitted up for the work in public speaking, and the University chapel and other rooms are available for class recitations and individual practice. Moreover, the students in the department are required to make constant use of books in the English, history and political science, economics and sociology, education, and other collections, as well as of the various current periodicals.

ADVICE AS TO CHOICE OF COURSES.—The courses here offered are carefully articulated units and are so arranged as to make possible a systematic study of public speaking during the Sophomore, Junior and Senior years. The work of the Sophomore year is given over to the composition of public addresses, for the principle of instruction is that right speaking depends upon right thinking. Attention is first given, therefore, to securing good mental action rather than the technique of delivery.

Students fitting themselves for the law or the ministry, for politics or social service, are urged to elect the entire series of courses offered. The University of Kansas participates in debates with the universities of Oklahoma, Colorado and Missouri. For these contests, the courses in public speaking are designed to give preparation. Men desiring to make intercollegiate debates are advised to consider courses 1, 52 and 53.



Courses 1 and 2 are fundamental and should precede the advanced work of the Junior and Senior years. Course 1 is a requisite for courses 52 and 53. Course 2 should precede courses 50, 51 and 54.

All students in the department are advised to join one of the literary societies of the University and to take part when possible in University debating contests. Members of University debating teams who enroll in course 53 may substitute their team work for part of the required class exercises.

1.—THE PRINCIPLES OF ARGUMENTATION. Three hours, first semester, at 8. This course is fundamental in public speaking and is recommended to Sophomores. Training is given in analysis, brief-drawing, evidence, refutation, and persuasion. Prerequisites, courses 1 and 2 in rhetoric.

2.—THE COMPOSITION OF PUBLIC ADDRESSES. Three hours, second semester, at 8. This course is a continuation of course 1 and gives training in choosing subjects, gathering material and formulating plans. The forms covered are the commemorative addresses, eulogy, after-dinner speech, legislative address and one oration. This course is fundamental and should precede the courses in delivery. Assistant Professor Gesell.

50.—PRACTICAL PUBLIC SPEAKING. Two hours, first semester, Monday and Wednesday, at 9, and Tuesday and Thursday, at 9, also individual conferences at hours to be arranged. Planned to meet the demands of the lawyer, minister, teacher and others who meet through the medium of speech. Daily practice in the presentation of the various forms of public address, analysis, gesture, bearing and effective presentation. Assistant Professor Gesell.

51.—EXTEMPORE SPEAKING. Two hours, second semester, at 9. Weekly addresses based upon prepared outlines. Topics are assigned in the field of American history, politics and current events. Careful preparation of material is required; the plan of the speech is made in advance, but the choice of language is left for the moment of speaking. Assistant Professor Gesell.

52.—DEBATING. Two hours, first semester, at 8. Practical work in brief-drawing, the handling of evidence and debating. This course is based on course 1 but is especially concerned with the presentation of the argument. The class is limited in number and can be taken only with the consent of the instructor. Assistant Professor Gesell.

53.—DEBATING. Two hours, second semester, at 8. This course is a continuation of course 52 and is open only to members of the University debating squad. Assistant Professor Gesell.

54.—PUBLIC DISCUSSION. Two hours, first semester, at 10:15. Study of current political problems with training in the discriminating use of sources and in effective presentation. Assistant Professor Gesell.



## ROMANCE LANGUAGES AND LITERATURES.

Professor GALLOO.  
 Assistant Professor NEUEN SCHWANDER.  
 Assistant Professor OWEN.  
 Assistant Professor WARD.  
 Assistant Professor WINTER.  
 Assistant Professor COWPER.  
 Miss GARDNER, Instructor.  
 Miss ENKE, Instructor.  
 Miss STANTON, Instructor.  
 Mr. BROOKS, Fellow.

**EQUIPMENT.**—The department of Romance Languages and Literatures possesses a collection of illustrative material consisting of several hundred photographs, stereopticon slides, maps, plans, plaster casts, etc., illustrating the history, architecture, life and general culture of the Romance nations.

The Romance library of the University contains 3815 volumes, which cover in a representative way the literary development of France, Spain and Italy, from the earliest times to the present days, and the greater monuments of Portuguese literature. Twenty periodicals are received, which include all the important literary and philological journals devoted to the Romance languages.

*French.*

**ADVICE AS TO CHOICE OF COURSES.**—The first five courses must be taken in the order indicated below.

Of the following courses, 6-11, students are required to elect at least three (which must include 9 and a composition course) before they can be admitted to any of the advanced courses.

The literature courses should, as far as possible, be taken in the catalogue order. It is recommended that they be accompanied by corresponding courses in mediæval or modern European history.

In order to take up the study of the historical development of any of the Romance languages, it is essential that students be well grounded in Latin. They should also have a reading knowledge of German.

Graduate work in this department presupposes acquaintance with elementary Spanish and Italian.

The head of the department will, on application, outline a course for students intending to specialize in, or teach, French.

1.—**ELEMENTARY FRENCH I.** Five hours, first semester, at 8, 9, 10:15, 11:15, or 1:30; also given in the second semester, at 8 and 11:15. Not open to Juniors and Seniors, who must enroll in course 50. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation, accidence and elementary syntax. Pre-requisite, three years of foreign language. Students who have had less than three years of foreign language form a section reciting at 8. Assistant Professor Neuen Schwander, Assistant Professor Ward, Assistant Professor Winter, Assistant Professor Cowper, or Miss Stanton.

2.—**ELEMENTARY FRENCH II.** Five hours, second semester, at 8, 9, 10:15, 11:15, or 1:30; also given in the first semester, at 8 and 11:15. A continuation of course 1. Reading of simple

prose texts, with exercises in dictation and elementary composition. Not open to Juniors and Seniors, who must enroll in course 51. Assistant Professor Neuen Schwander, Assistant Professor Ward, Assistant Professor Winter, Assistant Professor Cowper, or Miss Stanton.

3.—MODERN FRENCH PROSE WRITERS. Three hours, both semesters—first semester, at 9; second semester, at 8. Translation and reading of some works of Mérimée, George Sand, Anatole France, and René Bazin. Assistant Professor Neuen Schwander, Assistant Professor Ward, or Miss Stanton.

4.—COMPOSITION. Two hours, both semesters—first semester, at 9; second semester, at 8. Written exercises intended chiefly as a grammatical review. Oral exercises. Dictation. May be taken in conjunction with course 3 or course 5. Assistant Professor Winter, or Assistant Professor Cowper.

5.—FRENCH PROSE AND POETRY. Three hours, both semesters, at 11:15. Reading of representative works of the seventeenth, eighteenth and nineteenth centuries. Prerequisites, courses 3 and 4. Assistant Professor Neuen Schwander, or Miss Stanton.

6.—COMPOSITION. Two hours, second semester, at 11:15. A continuation of course 4, intended to provide additional practice in writing and speaking French. Assistant Professor Neuen Schwander, or Miss Stanton.

7.—CORNEILLE AND RACINE. Two hours, both semesters, at 11:15. Reading of four or five of the greatest tragedies of each poet. Prerequisites, courses 4 and 5. Assistant Professor Ward, or Miss Stanton.

8.—ORAL FRENCH COMPOSITION. Three hours' credit, daily, second semester, at 11:15. This course is conducted entirely in French. The idiomatic use of the spoken tongue is emphasized. Prerequisites: courses 3, 4 and 6, but students who have shown marked ability in courses 3 and 4 may omit 6. Assistant Professor Cowper and Miss Stanton.

9.—MOLIERE. Three hours, first semester, at 11:15. Careful study of the more important plays, rapid reading of the others; reports in French by members of the class. Professor Galloo.

10.—COMPOSITION, WRITTEN AND ORAL. Two hours, first semester, at 11:15. Practice in writing and speaking French. Professor Galloo.

11.—ADVANCED COMPOSITION. Two hours, second semester, at 11:15. Translation, original composition, and practice in speaking French. Prerequisite, course 10. Assistant Professor Neuen Schwander.

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50.—ELEMENTARY FRENCH I. Five hours, first semester, at 10:15. A beginning course, intended primarily for Juniors and Seniors, the aim of which is to give some insight into the fundamental principles of language, and at the same time a large acquaintance with French through more extensive reading, in this and the following course, than can be done in a Freshman

course. Required for Juniors and Seniors beginning French. Professor Galloo.

51.—ELEMENTARY FRENCH II. Five hours, second semester, at 10:15. A continuation of course 50. Professor Galloo.

52.—HISTORY OF EARLY FRENCH LITERATURE. Three hours, first semester, at 9. From the earliest times to the classical period. Lectures, recitations, and private readings. Professor Galloo.

53.—HISTORY OF MODERN FRENCH LITERATURE. Three hours, second semester, at 9. From the beginning of the classic period to the present day. Lectures, recitations, and private readings. Professor Galloo.

54.—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours, second semester, by appointment. A study of the development of French literature from the Renaissance to the end of the reign of Louis XIV. Miss Stanton.

55.—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours, second semester, by appointment. Special attention is paid to the life and works of Voltaire; study of Montesquieu, Rousseau, and the encyclopedists; the dramatists. Assistant Professor Neuen Schwander.

56.—THE ROMANTIC SCHOOL (1800-1835) I. Three hours, first semester, at 9. A study of the rise of romanticism in France and of its characteristic products in poetry and the drama. Lamartine, A. de Vigny, and A. de Musset. Professor Galloo.

57.—THE ROMANTIC SCHOOL (1800-1835) II. Two hours, second semester, at 9. This is a continuation of course 56, and is devoted chiefly to Victor Hugo's works. Professor Galloo.

58.—DEVELOPMENT OF THE FRENCH NOVEL I. Two hours, first semester, at 9. A survey of the novel in the seventeenth and eighteenth centuries. Professor Galloo.

59.—DEVELOPMENT OF THE FRENCH NOVEL II. Three hours, second semester, at 9. The novel in the nineteenth century, with special reference to the origin and growth of realism and naturalism. Professor Galloo.

60.—THE FRENCH DRAMA. Three hours, second semester, at 1:30. A study of the development of the drama in France from the origin to the close of the nineteenth century. Lectures, recitations, and written reports. Miss Stanton.

61.—OLD FRENCH. Two hours, first semester, by appointment. An introduction to French philology. Chrestomathie de l'ancien français (Constans). Professor Galloo.

62.—OLD FRENCH. Two hours, second semester, by appointment. A continuation of course 59. Reading of the *Extraits de la Chanson de Roland* (Gaston Paris), with special attention to the phonetic changes and the inflections. Professor Galloo.

*Spanish.*

1.—ELEMENTARY SPANISH I. Five hours, first semester, at 9, 11:15, or 1:30; also given in the second semester, at 1:30. Not open to Juniors and Seniors, who must enroll in course 50. An



outline of grammar (Hills and Ford). Reading of short stories. Elementary composition. Prerequisite, three years of foreign language. Students who have had less than three years of foreign language form a section, reciting at 1:30. Assistant Professor Owen, Assistant Professor Winter, or Miss Enke.

2.—ELEMENTARY SPANISH II. Five hours, second semester, at 9 or 1:30; also given in first semester, at 1:30. Grammar and composition. Reading of easy modern prose: Carrión-Aza, Pérez Galdós, Alarcón, etc. Assistant Professor Owen, Assistant Professor Winter, or Miss Enke.

3.—MODERN SPANISH PROSE WRITERS. Three hours, both semesters, at 10:15. Translation and reading of representative works of Alarcón, Caballero, Pereda, Valera, Valdés, Prerequisite, course 2. Assistant Professor Owen.

4.—COMPOSITION. Two hours, first semester, at 10:15. Systematic training in writing and speaking Spanish. Ramsey's Textbook of Modern Spanish; Umphrey's Spanish Prose Composition. Must be preceded or accompanied by course 3. Miss Enke.

5.—SPANISH PROSE AND POETRY. Three hours, second semester, at 10:15. Specimens of the work of the poets and prose writers of the eighteenth and nineteenth centuries. Prerequisites, courses 3 and 4. Assistant Professor Owen.

6.—ADVANCED COMPOSITION. Two hours, second semester, at 10:15. Translation into Spanish of English prose, original composition and practice in speaking Spanish. Prerequisites, courses 4 and 5. Miss Enke.

7.—ORAL COMPOSITION. Three hours' credit, daily, second semester, at 11:15. This course is conducted wholly in Spanish. The idiomatic use of the spoken tongue is emphasized. Prerequisites, courses 3, 4 and 6, save that students who have shown marked ability in courses 3 and 4 may omit 6. Assistant Professor Owen and Miss Enke.

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50.—ELEMENTARY SPANISH I. Five hours, first semester, at 9:00. A beginning course, intended primarily for Juniors and Seniors, the aim of which is to give some insight into the fundamental principles of language, and at the same time a larger acquaintance with Spanish through more extensive reading, in this and the following course, than can be done in a Freshman course. Required for Juniors and Seniors beginning Spanish. Assistant Professor Owen, or Miss Enke.

51.—ELEMENTARY SPANISH II. Five hours, second semester, at 9:00. A continuation of course 50. Assistant Professor Owen, or Miss Enke.

52.—DON QUIJOTE. Three hours, second semester, at 2:30. A careful reading of the first part, together with outside reading and reports covering the more famous chapters of the second part. Assistant Professor Owen or Miss Enke.



53.—HISTORY OF EARLY SPANISH LITERATURE. Three hours, first semester, at 1:30. From the earliest times, through the classic period. Lectures, recitations and private readings. Assistant Professor Owen.

54.—HISTORY OF MODERN SPANISH LITERATURE. Three hours, second semester, at 1:30. From the classic period to the present day. Lectures, recitations and private readings. Miss Enke.

55.—THE SPANISH NOVEL OF THE SIXTEENTH AND SEVENTEENTH CENTURIES. Two hours, first semester, by appointment. Cervantes, *Novelas ejemplares*; *Lazarillo de Tormes* and other picaresque novels. The Spain of the period. Lectures, collateral reading and reports. Assistant Professor Owen.

56.—THE CLASSIC SPANISH DRAMA. Two hours, second semester, by appointment. Tirso de Molina, Lope de Vega, Calderón, and Ruiz de Alarcón. Careful study of selected plays from each dramatist; more rapid reading of others. Schack's Spanish Dramatic Literature. Assistant Professor Owen.

### *Italian.*

Students are advised to take, as preparation, courses 1 and 2 in French.

1.—ELEMENTARY ITALIAN I. Three hours, first semester, at 11:15. Grammar. Reading, Marinoni's Reader. Assistant Professor Ward, and Miss Stanton.

2.—ELEMENTARY ITALIAN II. Continuation of course 1. Three hours, second semester, at 11:15. Grammar, composition, and reading of Manzoni, Fogazzaro and modern authors. Assistant Professor Ward, and Miss Stanton.

3.—GRAMMAR AND READING. Two hours, first semester, at 1:30. This course may be taken in connection with course 1. Assistant Professor Ward.

4.—WRITERS OF THE CINQUECENTO. Two hours, second semester, at 1:30. Prerequisite, course 3. Assistant Professor Ward.

50.—DANTE. Three hours, first semester, by appointment. The *Divina Commedia*; its relation to the age, and its importance in the history of the Italian language and literature. Assistant Professor Ward.

### SOCIOLOGY.

Professor BLACKMAR.  
Assistant Professor HELLEBERG.  
Mr. NESBITT, Fellow.

EQUIPMENT.—Instruction in the department of sociology is conducted chiefly by lectures, reading, recitation, and investigation, aided in certain courses by textbooks. The university library is very well equipped for the study of sociology. All of the principal magazines treating of the work of this department are on file in the reading room for the use of students. In addition there are charts, maps and outlines. In the natural history mu-

seum is a valuable collection of specimens for the study in anthropology and ethnology. A limited amount of investigation of social and racial conditions is being carried on.

50.—ELEMENTS OF SOCIOLOGY. Three hours, first semester, at 1:30. This is a general course in the foundations and principles of sociology. It includes the careful survey of social origins, social evolution, social structure, social activities and social organization. It is a study of the nature of society in its concrete forms from an evolutionary standpoint, and of the operation of social forces and social laws. Much attention is given to the causes which have produced society. A concrete study of a community is required of each student. Professor Blackmar.

51.—APPLIED SOCIOLOGY. Three hours, second semester, at 1:30. In this course special attention is given to social ideals, social aims and social achievements, the conditions and modes of social progress, and the subject of conscious social activity, social environment, the causes and effects of inequalities, the equalization of opportunities and the advancement of justice; some phases of social ethics. Professor Blackmar.

52.—SOCIAL PATHOLOGY. Two hours, first semester, at 1:30. A general study of poverty, pauperism, unemployment, epilepsy, insanity, degeneracy, etc., and their causes, prevention and cure. Conditions of the slums and rural populations, housing of the poor, social maladjustment, occupational diseases, etc. Assistant Professor Helleberg.

53.—REMEDIAL AND CORRECTIVE AGENCIES. Two hours, second semester, Tuesday and Thursday, at 1:30. Administration of charitable and correctional affairs; management of jails, reformatories, penitentiaries, and institutions for defectives and dependents; housing of the poor; defects of social organization; methods of prevention of social degeneration; social sanitation. Each student is required to visit at least two social institutions and report on same. Assistant Professor Helleberg.

54.—SOCIALIZATION AND SOCIAL CONTROL. Three hours, first semester, at 2:30. This course is designed to give a thorough study in pure sociology. It has to do with social forces, social laws, and the origin and development of social control. It involves a study of aggregation, association and coöperation, as well as social inequalities and methods of overcoming their evil effects. Assistant Professor Helleberg.

55.—PSYCHOLOGICAL SOCIOLOGY. Three hours, second semester, at 2:30. A study of the concept of the social self and the process of its development, together with applications to social problems, in order to establish a viewpoint for sociology; psychology of races, classes and of social and political institutions. Assistant Professor Helleberg.

56.—THE FAMILY. Two hours, second semester, at 2:30. The origin and growth of the family historically considered. The family as the unit of society. The legal relation of husband and wife and of parents and children. The economic basis of family life. The psychology of family life. The family as a type of

society. Its importance in the preservation of society. The pathology of the family. The relation of the family to the general social organism, politically, religiously and socially. Assistant Professor Helleberg.

57.—SOCIALISM. Two hours, first semester, at 2:30. The development of modern socialistic theories, including a study of French and German socialism. Modern socialistic tendencies and their causes. The development of social democracy. The limitations of industrial liberty. Government control and government ownership of industries. Assistant Professor Helleberg.

58.—ANTHROPOLOGY. Two hours, first semester, at 8. The natural history of man. The probable origin and antiquity of man. Comparison with anthropoid apes. Man's physical, social and mental characteristics. Methods of obtaining food, shelter, and distribution over the earth. Evidences of Tertiary man. Relics of man found in the gravel drift, caves and mounds. The beginnings of art and industry. The division of labor. The origin and development of language. Professor Blackmar.

59.—ETHNOLOGY. Two hours, second semester, at 8. Origin of races and ethnic groups. Racial differentiation and development. Characteristics of ethnic society. The conflict and survival of races. Their geographical distribution. Influence of geographical and physical environment. Comparison of natural and civilized races. Professor Blackmar.

60.—RURAL SOCIOLOGY. Three hours, second semester, at 1:30. A study of social conditions in rural districts and small towns. The agencies for social and economic betterment. The church and the schoolhouse as social centers. Political, social and economic organizations. Alternates with applied sociology (given in 1913). Professor Blackmar.

## SPANISH.

(See Romance Languages and Literatures.)

## ZOOLOGY.

Professor MCCLUNG.

Professor DYCHE.

Assistant Professor BAUMGARTNER.

Assistant Professor MOODIE.

Assistant Professor ROBERTSON.

Assistant Professor HEUSER.\*

Miss NOWLIN, Instructor.

Mr. LINDSEY, Instructor.

Mr. GUNTHER, Instructor.

Miss CAROTHERS, Fellow.

Mr. WENRICH, Fellow.

EQUIPMENT.—The department is in the possession of ample facilities in the way of specimens and apparatus for the presentation of the courses outlined below. The historical development of vertebrate life is made teachable by the large paleontological collection in the museum. Representative types of inverte-

\* Appointed for second semester, 1911-'12.



brates from the Atlantic and Pacific coasts, as well as from Bermuda, make possible the thorough treatment of almost any of the lower orders. Histological, cytological and embryological material of great variety has been provided. Microscopes, microtomes and other apparatus necessary for even the most advanced work are at hand. The well-equipped preparation rooms make instruction in the museum very thorough.

**ADVICE CONCERNING CHOICE OF COURSES.**—Course 1 is designed as an introduction to the subject, and, so far as possible, gives a general survey of the animal kingdom. The character of the work is such as to lay particular stress upon training in the independent observation and correlation of facts. It is, therefore, a course which may be taken by those who wish merely to gain a general idea of zoölogy and to become acquainted with the methods of scientific work. As an elementary course it forms a basis for any advanced work, and is required for entrance into the other courses, except 70. Taken with course 1 in botany, it completes a year's training in elementary biology.

Courses 2 and 3 logically follow course 1, and should be taken by those who desire a more comprehensive view of the subject than can be gained in a half-year's study. While more advanced in character than the first course, they are not too technical for the general student. They should be taken by all wishing to continue in the more advanced courses.

Students contemplating the study of medicine are recommended to take not less than ten hours of work in zoölogy. Arrangements have been made to provide such students with as much comparative anatomy as possible. Consultation should be had with the head of the department, early in the course, for the purpose of arranging the work.

1.—**ELEMENTARY ZOÖLOGY.** Five hours, first semester, 1:30 to 3:30. A course in the general principles of zoölogy. The work consists of a laboratory study of type specimens, together with lectures upon classification, habits, distribution, etc. Professor McClung, Assistant Professor Moodie, Miss Nowlin, Mr. Lindsey, Mr. Gunthorp and Mr. Wenrich.

2.—**INVERTEBRATE MORPHOLOGY.** Five hours, second semester, 10:15 to 12:15. A continuation of the work begun in course 1, with particular reference to the Protozoa, Porifera and Coelenterata. For prospective medical students special work on pathogenic Protozoa and parasitic worms will be provided. Miss Nowlin and Mr. Gunthorp.

3.—**CHORDATE MORPHOLOGY.** Five hours, second semester, 1:30 to 3:30. A course dealing with the chordates, and designed especially for students preparing for the study of medicine. Prerequisite, course 1. Assistant Professor Baumgartner and Assistant Professor Moodie.

50.—**SYSTEMATIC AND DESCRIPTIVE ZOÖLOGY.** Five hours, first semester, 3:30 to 5:30. Lectures, with exhibition of specimens. Laboratory work in systematic zoölogy. Prerequisites, courses 1 and 2 or 3. Assistant Professor Moodie. (Not offered in 1912-'13.)



51.—FIELD WORK AND LIFE HISTORIES. Three or six hours, second semester, Monday and Friday, at 3:30, and Saturday morning. A systematic and ecological study of the local fauna. Prerequisites, courses 1 and 2 or equivalent. Assistant Professor Baumgartner.

53.—HISTOLOGY, OR MICROSCOPIC ANATOMY. Five hours, first semester, 3:30 to 5:30. Microscopical manipulation, the study of normal tissues and the methods of preparing mounted objects are presented in this course. Lectures and laboratory work. Prerequisites, courses 1 and 2 or equivalent. Assistant Professor Baumgartner, Assistant Professor Heuser.

54.—CYTOLOGY, OR CELLULAR BIOLOGY. Five or ten hours, throughout the year, by appointment. A course in cell structure and development. Lectures and laboratory work. Prerequisites, courses 1 and 2 or equivalent. Professor McClung and Miss Nowlin.

55.—EMBRYOLOGY. Five hours, second semester, by appointment. The ontogeny of the shark, chick, pig, etc. Prerequisites, course 53 or 54. Assistant Professor Heuser.

56.—PALEOZOÖLOGY. Five hours, first semester, 3:30 to 5:30. A course dealing with the succession of animal life upon the earth. Prerequisites, courses 1 and 3. Geology 1 is recommended as further preparatory work. Assistant Professor Moodie.

70.—ORGANIC EVOLUTION. Three hours, first semester, at 9. This course will present the theory of evolution historically and in the light of recent important evidence derived from observation and experiment. Lectures, readings and recitations. Professor McClung and Professor Stevens.

71.—ADVANCED PROTOZOÖLOGY. Five or ten hours, throughout the year, by appointment. A detailed study of the different classes of Protozoa, with special attention to life histories, regeneration, cytology and classification. Conferences and laboratory work. Prerequisite, course 2. Miss Nowlin.

72.—HEREDITY AND ANIMAL BREEDING. Three hours, second semester, 9 to 10. This course deals with the principles involved in the formation of animal groups, and will present especially the modern experimental studies. Lectures and laboratory work. Prerequisite, course 1. Courses 2 and 3 and botany 1 and 3 are recommended. Assistant Professor Robertson.

### III. *School of Engineering.*

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#### FACULTY.

- FRANK STRONG, PH. D., President.
- WILLIAM H. CARRUTH, PH. D., Vice President of the Faculties, and Professor of Germanic Languages.
- FRANK O. MARVIN, A. M., Dean, and Professor of Civil Engineering.
- EDGAR H. S. BAILEY, PH. D., Professor of Chemistry and Metallurgy.
- CHARLES G. DUNLAP, LITT. D., Professor of English Literature.
- ERASMUS HAWORTH, PH. D., Professor of Geology, Mineralogy, and Mining.
- WM. C. STEVENS, M. S., Professor of Botany.
- EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
- PERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.
- GEORGE C. SHAAD, E. E., Professor of Electrical Engineering.
- FREDERICK E. KESTER, PH. D., Professor of Physics.
- HAMILTON P. CADY, PH. D., Professor of Chemistry.
- WILLIAM C. HOAD, B. S., Professor of Civil Engineering.
- B. J. DALTON,\* B. S., Professor of Railway Engineering.
- ELMER F. ENGEL, A. M., Associate Professor of German.
- MARTIN E. RICE, M. S., Secretary, and Associate Professor of Physics.
- JOHN N. VAN DER VRIES, PH. D., Associate Professor of Mathematics.
- HERBERT A. RICE, C. E., Associate Professor of Civil Engineering.
- CLINTON M. YOUNG, E. M., Associate Professor of Mining Engineering.
- FREDERICK H. BILLINGS, PH. D., Associate Professor of Botany and Bacteriology.
- HENRY W. HUMBLE, A. M., Associate Professor of Law.
- ARTHUR J. BOYNTON, A. M., Associate Professor of Economics.
- CHARLES H. ASHTON, PH. D., Associate Professor of Mathematics.
- GEORGE J. HOOD, B. S., Associate Professor of Mechanical Drawing.

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\* Detailed to work with the State Public Utilities Board.

- CHARLES I. CORP, B. S., Associate Professor of Mechanical Engineering.
- FRANK B. DAINS, PH. D., Associate Professor of Chemistry.
- WM. A. WHITAKER, JR., A. M., Associate Professor of Chemistry and Metallurgy.
- FRANK E. WARD, Superintendent of Fowler Shops.
- FREDERICK N. RAYMOND, A. M., Assistant Professor of English.
- CHARLES COCHRAN, B. S. in M. E., Assistant Professor of Mechanical Drawing.
- FRANK E. JONES, Assistant Professor of Pattern Making.
- ALFRED H. SLUSS, B. S. in M. E., Assistant Professor of Mechanical Engineering.
- HARRY GARDNER, M. S., Assistant Professor of Sanitary Engineering.
- EDWARD M. BRIGGS, A. M., Assistant Professor of German.
- HERMAN C. ALLEN, A. M., Assistant Professor of Chemistry.
- CLARENCE A. JOHNSON, B. S., Assistant Professor of Electrical Engineering.
- CLIFFORD C. YOUNG, M. S., Assistant Professor of Chemistry.
- HERBERT E. JORDAN, PH. D., Assistant Professor of Mathematics.
- DAVID W. STRADLING, C. E., Assistant Professor of Railway Engineering.
- MAY GARDNER, A. B., Instructor in Romance Languages.
- FRANK F. RUPERT, A. M., Instructor in Chemistry.
- GLENN K. PALMER, A. B., Instructor in English.
- JOHN J. WHEELER, A. B., Instructor in Mathematics.
- OSCAR W. MELIN, B. S. in C. E., Instructor in Civil Engineering.
- HERBERT H. WILTFONG, Instructor in Forging.
- JASPAR O. HASSLER, A. B., Instructor in Mathematics.
- CHAS. A. HASKINS, B. S., Instructor in Civil Engineering.
- JACOB O. JONES, Instructor in Civil Engineering.
- WARREN W. REED, A. B., Instructor in English.
- EPHRAIM E. LANDRUM, Assistant Instructor in Woodworking.
- CARL F. HANSON, Laboratory Assistant in Electrical Engineering.
- REGINALD K. BAILEY, A. B., Assistant Instructor in Chemistry.
- ROBERT R. FISHER, B. S., Laboratory Assistant in Mechanical Engineering.
- GEO. M. BROWN, Laboratory Assistant in Mining Engineering.

## PURPOSE OF THE SCHOOL.

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The School of Engineering is the scientific or technical school of the University. It offers what is, in the main, technical training in the various departments of engineering—civil, electrical, mechanical, mining, sanitary, and chemical. The course of study in each of these branches of engineering is designed first of all to furnish a broad and thorough training in mathematics, mechanics, drawing, and physical science, the fundamental subjects on which the more professional subjects are based. The six courses are alike during the first year, and are nearly identical up to the end of the Sophomore year, but differ considerably thereafter, each emphasizing the subjects peculiar to itself and giving as much technical training as is consistent with the thorough inculcation of sound theory.

## DEGREES.

All courses in the School of Engineering lead to the degree of bachelor of science. All work for higher degrees is under supervision of the Faculty of the Graduate School. The degree of master of science is granted to graduates in engineering after completion of one year's work in residence.

Graduates in engineering from this University, and masters of science who have received their degrees through the Graduate Faculty, are eligible to the professional degrees of civil engineer, electrical engineer, mechanical engineer, mining engineer, and chemical engineer, whichever are appropriate to the undergraduate courses taken. Candidates for these degrees must have spent at least three years' actual time in professional practice, in positions of responsibility, in the design, construction or operation of engineering works, and must furnish detailed and satisfactory evidence as to the nature and extent of this practice.

The candidate must submit an engineering thesis, accompanied by detailed explanations, drawings, specifications, estimates, etc., and embodying the results of his own work or observation. If approved, the thesis and all accompanying material becomes the property of the University.

The thesis for any professional degree must be delivered to the Dean of the School of Engineering on or before May 15.

## ADMISSION.

There are two methods of admission to the School of Engineering of the University: first, by examination; second, by certificate.

### 1. BY EXAMINATION.

Times and places of examination for admission to the School of Engineering are the same as for admission to the College.



Candidates may divide the examination between two years, as noted.

## 2. BY CERTIFICATE.

Nearly all students enter the School of Engineering by certificates from high schools, academies, preparatory schools of other colleges and universities, and from military schools, accredited by the University. The candidate for admission by certificate must present either a certificate or other credential, as noted in connection with admission to the College. In general, the same rules apply in regard to admission by certificate to the School of Engineering as apply for admission to the College.

## SUBJECTS FOR ADMISSION.

Fifteen units are required for admission.

REQUIRED.		OPTIONAL.	
Mathematics 1, 2, 3, algebra and plane and solid geometry,	3 units.	Latin 1, 2, 3, German 1, 2, 3, French 1, 2, 3, Greek 1, 2, 3, Greek and Rom. hist., Mediæval and modern history,	3 units. 3 " 3 " 3 " 1 " 1 "
English 1, 2, 3,	3 "	English history,	1 "
Physics,	1 "	American history,	1 "
Free - hand or me- chanical drawing,	1 "	Chemistry,	1 "
Foreign language — may be French or German or Latin; 3 units of one, or 2 units of any one and 1 unit of any other,	3 "	Higher algebra, Plane trigonometry, Physical geog., Botany, Physiology, Zoölogy, Economics, Manual training,	$\frac{1}{2}$ " $\frac{1}{2}$ " $\frac{1}{2}$ or 1 " 1 " 1 " 1 " $\frac{1}{2}$ or 1 " 1 "
Required,	11 units.		
Optional,	4 "		
Total,	15 units.		

Four units must be chosen from the optional list.

## DEFICIENCIES AND UNITS OF ADMISSION.

The candidate may be admitted to the Freshman class although deficient in some of the requirements as laid down above, provided such deficiency does not exceed two units. All deficiencies must be made good within such time as may be fixed in each individual case by the Dean of the School of Engineering.

Applicants for admission are advised to come without deficiencies, and to be especially well prepared in algebra and geometry.

An entrance unit represents five periods a week, of not less than forty minutes each, for thirty-five weeks. A unit in the School of Engineering represents five periods a week for a half-year. In making up deficiencies in University classes, one School of Engineering unit is counted as equivalent to one entrance unit.

## ADVANCED CREDIT.

Advanced credit for work in preparatory schools will be given upon examination only. For times and places of such examination, see "The College."

## ADMISSION TO ADVANCED STANDING.

For any advanced rank, the applicant must have completed all of the studies of the course below the rank for which he applies, including the entrance requirements, or their substantial equivalent, as determined by the committee on advanced standing. Application for credits toward advanced standing should be made to the Dean of the School of Engineering.

## ACCREDITED SCHOOLS.

The list of schools accredited to the School of Engineering is practically the same as that of schools accredited to the College.

## SPECIAL STUDENTS.

Opportunity is given in the School of Engineering for the admission of persons of mature years who desire to pursue some special line of work, without following any prescribed course or becoming candidates for a degree.

The admission of such special students is directly under the control of the Dean of the School of Engineering, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for admission as special students must present satisfactory evidence of proper preparation for the studies desired, and must also meet other requirements as fixed by the Faculty.

Special students are subject to the same regulations as are regular students with regard to the quality of work performed and attendance at recitations and examinations, but not as to number of studies to be pursued.

## REGISTRATION AND ENROLLMENT.

All candidates for admission to the School of Engineering having high-school certificates, and all students intending to pursue their studies in the ensuing year, should present themselves for registration at the University on September 18 to 21, inclusive, 1912. Preliminary registration may be made through the mails by forwarding to the Registrar a certified transcript of preparatory work, this registration to be completed by the Registrar during the opening week of the following semester.

The Dean of the School of Engineering is charged with the execution of all University and Faculty rules relating to the enrollment of students in classes and their choice of studies.

Upon registration, each student will receive from the Registrar a certificate of his standing, which he will present to the Dean of the School, who is charged with the duty of enrollment of students in classes, selection and arrangement of subjects, and assignment of hours.

### INADEQUATE PREPARATION.

## GRADES AND FAILURES.

Any withdrawal from school or from any class must be authorized by the Dean; otherwise such absence will be construed as failure.

## FEEES.

Matriculation fee, for residents of the state.....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state.....	10 00
for nonresidents .....	20 00
Diploma fee, at graduation.....	5 00

### COST OF MATERIALS.

Those students taking summer field work will be charged the actual cost of living and incidental expenses.

## PROGRAM OF STUDIES.

Leading to the degree of Bachelor of Science.

The courses of study in the School of Engineering are almost entirely prescribed. The work is in the main technical, and requires preparation of a high order, especially in mathematics. It also requires continuous effort in the courses themselves, which call for the entire time of the student to succeed satisfactorily.

The work of the Freshman year is common to all students of the School of Engineering, so that a choice between the several lines of engineering need not be made until after a year's experience with college life. As a further aid in making an intelligent choice, the general aims of the several courses are here briefly stated.

### CIVIL ENGINEERING.

The first aim is to impart as broad a scientific training as the length of the course and the essential professional studies will allow, so that as many avenues to successful service as possible may be open to the graduate. Along professional lines, emphasis is laid first on work in surveying and field methods, as these are of special value to young engineers; second, on mechanics and its applications to the design of roofs and bridges and other structures; third, on railway location and construction; fourth, on hydraulics and its applications to irrigation and canal work; fifth, on sanitary and municipal engineering, including water supply, sewerage, and roads and pavements. Stress is placed on the study of principles, as being the things not likely to be acquired in after-life.

### MUNICIPAL AND SANITARY ENGINEERING.

This course is a modification of the course in civil engineering, and is intended for those desiring a more extensive study and a more thorough training in general sanitary science and in municipal and sanitary engineering practice. The program of study is practically the same as in civil engineering, except that during the Junior and Senior years the railroad work and the work in bridge designing are replaced by studies more closely related to public sanitation and municipal engineering practice.

This new added work includes a somewhat specialized course in bacteriology, particularly in its relation to water supply and sewerage; a short lecture and laboratory course in the chemical analysis of water; a broad and general study of sanitary science as related to public health problems; courses in the design of engineering structures related to sewage disposal and water purification; and a study of the theory and practice of reinforced concrete construction. The course also aims, by means of work in the sanitary laboratory and engineering experiment sta-



tion, by visits of inspection to engineering works of interest to sanitary engineers, and by means of papers and informal discussions in the journal meetings, to train the student's judgment in regard to sanitary problems, and to strengthen his grasp upon the regular classroom studies.

### ELECTRICAL ENGINEERING.

The course in electrical engineering is designed to train the student in those fundamental principles of mathematics, physics, chemistry, mechanics and electricity which form the basis of all successful engineering work. The laboratory and shop work is arranged to develop and to encourage individual skill and ingenuity. Such experience in practical electrical work as is possible is also included in the course. The aim of the entire course is to develop in the student those qualities that are essential to the professional engineer as well as those that are essential to the electrical artisan. The thesis involves original investigation.

### MECHANICAL ENGINEERING.

In addition to the fundamental sciences common to all branches of engineering, this course offers professional work for students wishing to specialize in steam and gas engineering or mill engineering.

For the first branch the special work includes the designing of steam and gas engines and steam turbines, and a study of methods of power distribution and application by both mechanical and electrical means. Complete power-plant designs are made, both for the generation of electrical power and for direct use in manufacturing plants, and students become familiar with all forms of steam, gas, air-compressor, hydraulic and electrical machinery through their study and operation in the laboratories.

For mill engineering, the special work includes the designing of mill or shop building, traveling cranes, etc., and power distribution systems. It is intended to suit the needs of prospective engineers and managers of manufacturing plants of all kinds.

### MINING ENGINEERING.

The object of the course in mining is to qualify students for future work in prospecting, mining, milling, and smelting, in accordance with modern scientific principles. In adopting the course of study, it was endeavored to include a sufficient requirement in language work to give the student a good knowledge of French, German and English, and to adjust the various essential subjects—mathematics, engineering, chemistry, metallurgy, mining, mineralogy, and geology—so that upon the completion of the course one may be well qualified for specializing along any line which his future life may make desirable.

## CHEMICAL ENGINEERING.

This course affords students an opportunity to specialize in chemistry, and to fit themselves for positions as chemists, managers or superintendents of manufacturing plants where the work is based on chemical science. This would include such industries as that of iron, zinc, gold and silver smelting and refining, the making of fertilizers, clay working, sugar refining, dyeing, bleaching, gas making, cement making, and general chemical manufacture. This course is broad enough for general training, and may be made special enough for technical work.

## WORK IN COMMON.

## FRESHMAN YEAR.

All students of the School of Engineering have work in common during the Freshman year. The differentiation between courses begins in the Sophomore year. In the statement of courses below, (a) signifies that the course is given during the first half of the semester, (b) during the second half. For definitions of "hours" and "credit," see "Description of Courses."

The modern foreign language chosen must be carried throughout the year, five hours each semester. The grade of the courses will depend on the amount and kind of language offered for entrance. For the times when the courses are given, the student should consult the "Description of Courses," and later the "Schedule" posted in Marvin Hall.

*First Semester:*

Rhetoric 1E, three credits.

Mechanics 1, two credits.

French, German, or Spanish, five credits.

College Algebra (Mathematics 2), three credits.

Plane Trigonometry (Mathematics 3), two credits.

Free-hand Drawing (Mechanical Drawing 1), six hours for first six weeks of term. One credit.

Mechanical Drawing 2, six hours for last fourteen weeks of term. Two credits. Same days and hours as for free-hand drawing.

Shop Work 1 or 2, five hours. Two and one-half credits.

*Second Semester:*

French, German, or Spanish, five credits.

Analytical Geometry I (Mathematics 4), two credits.

Calculus I (Mathematics 5), three credits.

Descriptive Geometry (Mechanical Drawing 3), three credits.

Rhetoric 2E, two credits.

Machine Drawing (Mechanical Drawing 4), six hours. Three credits.

Shop Work 1 or 2, five hours. Two and one-half credits.

## CIVIL ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

- Physics 1E, lectures and recitations four hours and laboratory two hours. Five credits.
- Chemistry 2, lectures and recitations three hours and laboratory two hours. Four credits.
- Calculus II (Mathematics 7), three credits.
- Analytical Geometry II (Mathematics 6), two credits.
- Stereotomy (Civil Engineering 4), six hours. Three credits.
- Shop Work 3, five hours. Two and one-half credits.
- One technical report. One-half credit.

*Second Semester:*

- Physics 2E, lectures and recitations four hours and laboratory two hours. Five credits.
- Surveying (Civil Engineering 2), four hours, and field work once a week. Five credits.
- Qualitative Analysis (Chemistry 3), recitations two hours and laboratory four hours. Four credits.
- Topographical Drawing (Civil Engineering 1), six hours. Three credits.
- Shop Work 4, five hours. Two and one-half credits.
- One technical report. One-half credit.

*Summer Vacation:*

- Surveying (Civil Engineering 3). Four weeks.

## JUNIOR YEAR.

*First Semester:*

- Mechanics 50, five credits.
- Advanced English Composition (English Language 50E), three credits.
- Geology 1, five credits.
- Railway Surveying (Civil Engineering 58), four hours, and field work once a week. Five credits.
- Railway Drawing (Civil Engineering 50), six hours. Three credits.

*Second Semester:*

- Strength of Materials (Mechanics 51), four credits.
- Engines and Boilers (Mechanical Engineering 53), three credits.
- Location of Railways (Civil Engineering 57), three credits.
- Roads and Pavements (Civil Engineering 56), two credits.
- Graphical Statics (Civil Engineering 51), six hours. Three credits.
- Testing Laboratory (Mechanics 52), four hours. Two credits.
- One technical report. One-half credit.

*Summer Vacation:*

- Surveying (Civil Engineering 53). Four weeks.

## SENIOR YEAR.

*First Semester:*

- Hydraulics (Mechanics 53), (a), four hours. Two credits.
- Hydraulic Machinery (Mechanical Engineering 56), (b), four hours. Two credits.
- Sewerage (Civil Engineering 59), (a), five hours. Two and one-half credits.
- Waterworks (Civil Engineering 60), (b), five hours. Two and one-half credits.
- Roofs and Bridges (Civil Engineering 61), ten hours. Five credits.
- Hydraulic Laboratory (Mechanics 54), two hours. One credit.
- Thesis, two and one-half hours, by appointment.
- One technical report. One-half credit.

*Second Semester:*

- Bridge Designing (Civil Engineering 62), ten hours. Five credits.
- Specifications and Contracts (Civil Engineering 52), (b), five hours. Two and one-half credits.
- Masonry (Civil Engineering 55), (a), five hours. Two and one-half credits.
- Cement Laboratory (Civil Engineering 54), two hours. One credit.
- Optional. One full semester's work chosen from engineering, mathematical or scientific subjects not required in course. Five credits.
- Thesis, two and one-half hours, by appointment.

## MUNICIPAL AND SANITARY ENGINEERING.

## SOPHOMORE YEAR.

(Same as in Civil Engineering.)

## JUNIOR YEAR.

*First Semester:*

- Mechanics 50, five credits.
- Advanced English Composition (English Language 50E), three credits.
- Geology 1, five credits.
- Sewerage (Civil Engineering 59), (a), five hours. Two and one-half credits.
- Waterworks (Civil Engineering 60), (b), five hours. Two and one-half credits.
- Municipal Engineering Drawing (Civil Engineering 67), six hours. Three credits.
- Sanitary Engineering Journal Meeting, one hour.



## JUNIOR YEAR.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Engines and Boilers (Mechanical Engineering 53), three credits.

Water Analysis (Chemistry 56E), six hours. Three credits.

Roads and Pavements (Civil Engineering 56), two credits.

Street Cleaning and Garbage Collection and Disposal (Civil Engineering 68), one credit.

Testing Laboratory (Mechanics 52), four hours. Two credits.

Sanitary Engineering Journal Meeting, one hour.

One technical report. One-half credit.

*Summer Vacation:*

Summer Field Work (Civil Engineering 53). Four weeks.

## SENIOR YEAR.

*First Semester:*

Hydraulics (Mechanics 53), (a), four hours. Two credits.

Hydraulic Machinery (Mechanical Engineering 56), (b), four hours. Two credits.

Water Bacteriology (Botany 50E), six hours. Three credits.

Sanitary Science and Public Health Problems (Civil Engineering 69), (a), five hours. Two and one-half credits.

Roofs and Bridges (Civil Engineering 61), ten hours. Five credits.

Sanitary Engineering Laboratory (Civil Engineering 70), two hours. One credit.

Hydraulic Laboratory (Mechanics 54), two hours. One credit.

Thesis, two and one-half hours, by appointment.

Sanitary Engineering Journal Meeting, one hour.

One technical report. One-half credit.

*Second Semester:*

Sanitary Engineering Design (Civil Engineering 64), five credits.

Specifications and Contracts (Civil Engineering 52), (b), five hours. Two and one-half credits.

Masonry (Civil Engineering 55), (a), five hours. Two and one-half credits.

Reinforced Concrete (Civil Engineering 65), (b), five hours. Two and one-half credits.

Cement Laboratory (Civil Engineering 54), four hours. Two credits.

Sanitary Inspection and Reports (Civil Engineering 72), one hour.

Thesis, two and one-half hours, by appointment.

Sanitary Engineering Journal Meeting, one hour.

## ELECTRICAL ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

Physics 1E, lectures and recitations four hours and laboratory two hours. Five credits.

Calculus II (Mathematics 7), three credits.

Analytic Geometry II (Mathematics 6), two credits.

Chemistry 2, lectures and recitations three hours and laboratory two hours. Four credits.

Machine Drawing (Mechanical Engineering 1), six hours. Three credits.

Shop Work 3, five hours, one day per week. Two and one-half credits.

One technical report. One-half credit.

*Second Semester:*

Qualitative Analysis (Chemistry 3), recitations two hours and laboratory four hours. Four credits.

Physics 2E, lectures and recitations four hours and laboratory two hours. Five credits.

Kinematics (Mechanical Engineering 2), six hours. Three credits.

Steam Machinery (Mechanical Engineering 3). Two credits.

Mathematics 9E, two credits.

Shop Work 4, five hours, one day per week. Two and one-half credits.

One technical report. One-half credit.

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Theory of Electricity and Magnetism (Physics 52), three credits.

Thermodynamics (Mechanical Engineering 57), four credits.

Dynamo Machinery (Electrical Engineering 50), three credits.

Electrical Measurement (Physics 60E), four hours, two days per week, on alternate weeks. Two credits.

Electrical Laboratory (Electrical Engineering 54), four hours, two days per week, on alternate weeks. Two credits.

Shop Work 50, five hours, one day per week. Two and one-half credits.

One technical report. One-half credit.

*Second Semester:*

Mechanics of the Steam Engine (Mechanical Engineering 62), three credits.

Theory of Alternating Currents (Electrical Engineering 51), five credits.

Electrical Laboratory (Electrical Engineering 55), four hours, two days per week on alternate weeks. Two credits.

Electrical Measurements (Physics 61E), four hours, two days per week on alternate weeks. Two credits.

## JUNIOR YEAR.

*Second Semester:*

- Strength of Materials (Mechanics 51), four credits.
- Advanced English Composition (English Language 50E), three credits.
- Testing Laboratory (Mechanics 52), four hours. Two credits.

## SENIOR YEAR.

*First Semester:*

- Dynamo Machinery (Electrical Engineering 52), five credits.
- Physical Chemistry (Chemistry 64), five credits.
- Surveying (Civil Engineering 71), three credits.
- Electrical Laboratory (Electrical Engineering 56), six hours. Three credits.
- Engineering Laboratory (Mechanical Engineering 60), four hours. Two credits.
- Professional Thesis (Electrical Engineering 61), one hour, by appointment.
- One technical report. One-half credit.

*Second Semester:*

- Electric Power Transmission (Electrical Engineering 58), (a), five hours. Two and one-half credits.
- Electric Railways (Electrical Engineering 60), (b), five hours. Two and one-half credits.
- Electric Lighting (Electrical Engineering 57), (a), five hours. Two and one-half credits.
- Contracts and Specifications (Civil Engineering 52), (b), five hours. Two and one-half credits.
- Professional Thesis (Electrical Engineering 61), three hours, by appointment.
- Optional work, five hours. This work is to be chosen from any engineering, physics or mathematics courses offered, subject to the approval of the head of the electrical engineering department. Five credits.

## MECHANICAL ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

- Physics 1E, lectures four hours and laboratory two hours. Five credits.
- Calculus II (Mathematics 7), three credits.
- Analytical Geometry II (Mathematics 6), two credits.
- Chemistry 2, lectures and recitations three hours and laboratory two hours. Four credits.
- Machine Drawing (Mechanical Engineering 1), six hours. Three credits.
- Shop Work 3, five hours. Two and one-half credits.
- One technical report. One-half credit.

## SOPHOMORE YEAR.

*Second Semester:*

Physics 2E, lectures four hours and laboratory two hours.  
Five credits.

Qualitative Analysis (Chemistry 3), recitations two hours and  
laboratory four hours. Five credits.

Steam Machinery (Mechanical Engineering 3), two credits.

Calculus III (Mathematics 9E), two credits.

Kinematics (Mechanical Engineering 2), six hours. Three  
credits.

Shop Work 4, five hours. Two and one-half credits.

One technical report. One-half credit.

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Dynamo Machinery (Electrical Engineering 50), three credits.

Thermodynamics (Mechanical Engineering 57), four credits.

Electrical Laboratory (Electrical Engineering 54), four hours,  
one day per week on alternate weeks. Two credits.

Engineering Laboratory (Mechanical Engineering 60), four  
hours. Two credits.

Shop Work 50, five hours. Two and one-half credits.

*Second Semester:*

Strength of Materials (Mechanics 51), four credits.

Machine Design (Mechanical Engineering 51), three credits.

Theory of Alternating Currents (Electrical Engineering 51),  
five credits.

Electrical Laboratory (Electrical Engineering 55), four hours,  
one day per week on alternate weeks. Two credits.

Testing Laboratory (Mechanics 52), four hours. Two credits.

Shop Work 51, five hours. Two and one-half credits.

One technical report. One-half credit.

*Summer Vacation:*

Summer Vacation Work (Mechanical Engineering 64). This  
course to be done before graduation.

## SENIOR YEAR.

*First Semester:*

Advanced English Composition (English Language 50E),  
three credits.

Hydraulics (Mechanics 53), (a), four hours. Two credits.

Hydraulic Machinery (Mechanical Engineering 56), (b), four  
hours. Two credits.

Hydraulic Laboratory (Mechanics 54), two hours. One credit.

Metallurgy I (Metallurgy 61), three credits.

Surveying (Civil Engineering 71), three credits.

Steam-engine Design (Mechanical Engineering 50), four  
hours. Two credits.



## SENIOR YEAR.

*First Semester:*

Gas-engine Design (Mechanical Engineering 55), one hour in class and four hours designing. Three credits.

Thesis (Mechanical Engineering 63), two hours. One credit. One technical report. One-half credit.

*Second Semester:*

Contracts and Specifications (Civil Engineering 52), (b), five hours. Two and one-half credits.

Engineering Practice (Mechanical Engineering 59), two credits.

Steam-turbine Design (Mechanical Engineering 58), (a), two hours in class and four hours designing. Three credits.

Engineering Laboratory (Mechanical Engineering 61), one hour in class and four hours in laboratory. Three credits.

Heating and Ventilation (Mechanical Engineering 54), two credits.

Economic History of the United States (Economics 3), three credits.

Thesis (Mechanical Engineering 63), two credits.

NOTE.—Irregular students not taking the electrical engineering subjects in the Junior year should, if possible, substitute therefor in that year advanced English composition and surveying.

## MINING ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

Chemistry 2, lectures and recitations three hours and laboratory two hours. Four credits.

Calculus II (Mathematics 7), three credits.

Analytical Geometry II (Mathematics 6), two credits.

Elementary Geology (Geology 1), lectures and recitations five hours. Five credits.

Machine Drawing (Mechanical Engineering 1), six hours. Three credits.

Shop Work 3, five hours. Two and one-half credits.

Mining Journal Meeting, one hour.

One technical report. One-half credit.

*Second Semester:*

Physics 1E, class four hours and laboratory two hours. Five credits.

Qualitative Analysis (Chemistry 3), recitations two hours and laboratory four hours. Four credits.

Surveying (Civil Engineering 2), four hours, and field work once a week. Five credits.

Mineralogy (Mineralogy 1E), lectures, recitations and laboratory work, five credits.

Topographical Drawing (Civil Engineering 1), four hours. Two credits.

Mining Journal Meeting, one hour.

One technical report. One-half credit.

## SOPHOMORE YEAR.

*Summer Vacation:*

Mining Survey Work, two weeks, followed by field work in Civil Engineering 3, two weeks.

## JUNIOR YEAR.

*First Semester:*

Mechanics 50, five credits.

Economic Geology (Geology 52), three credits.

Mining 50, five credits.

Quantitative Analysis (Chemistry 54), lectures and laboratory work, ten hours. Five credits.

Shop Work 4, five hours. Two and one-half credits.

Mining Journal Meeting, one hour.

One technical report. One-half credit.

*Second Semester:*

Physics 2E, lectures and recitations, four hours, and laboratory two hours. Five credits.

Strength of Materials (Mechanics 51), four credits.

Testing Laboratory (Mechanics 52), one credit.

Assaying and Metallurgical Analysis (Metallurgy 57), ten hours. Five credits.

Economic Geology (Geology 53), two credits.

Advanced English Composition (English Language 50E), three credits.

Mining Law (Mining 57), lectures, one hour. (May be taken in Senior year.)

Mining Journal Meeting, one hour.

• *Summer Vacation:*

Summer Excursion Work (Mining 59), four weeks.

## SENIOR YEAR.

*First Semester:*

Mining 51, three credits.

Mining 52,\* five credits.

Optional: Five credits from any geological, mathematical or engineering subjects not taken in the mining course.

Mining Journal Meeting, one hour.

Thesis work, two credits.

One technical report. One-half credit.

*Second Semester:*

Metallurgy II (Metallurgy 62), five credits.

Mining 51, three credits.

Mining 53, (a), five hours. Two and one-half credits.

Contracts and Specifications (Civil Engineering 52), (b), five hours. Two and one-half credits.

Professional Thesis (Mining 58). Two credits.

Mining Law. (See Junior year.)

Mining Journal Meeting.

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\* Mining 56 may be taken in place of Mining 52.

## CHEMICAL ENGINEERING.

## SOPHOMORE YEAR.

*First Semester:*

- Physics 1E, lectures and recitations four hours and laboratory two hours. Five credits.
- Chemistry 2, lectures and recitations three hours and laboratory four hours. Five credits.
- Calculus II (Mathematics 7), three credits.
- Analytical Geometry II (Mathematics 6), two credits.
- Machine Drawing (Mechanical Engineering 1), six hours. Three credits.
- Shop Work 3, five hours. Two and one-half credits.
- Chemical Club Meeting, one hour.
- One technical report. One-half credit.

*Second Semester:*

- Physics 2E, lectures and recitations four hours and laboratory two hours. Five credits.
- Qualitative Analysis (Chemistry 3), recitations two hours and laboratory six hours. Five credits.
- Mineralogy (Mineralogy 1E), ten hours. Five credits.
- Shop work 4, five hours. Two and one-half credits.
- Chemical Club Meeting, one hour.
- One technical report, one-half credit.

## JUNIOR YEAR.

*First Semester:*

- Mechanics 50, five credits.
- Advanced English Composition (English Language 50E), three credits.
- Quantitative Analysis (Chemistry 54), ten hours. Five credits.
- Organic Chemistry (Chemistry 4), seven hours. Five credits.
- One technical report, one-half credit.

*Second Semester:*

- Strength of Materials (Mechanics 51), four credits.
- Testing Laboratory (Mechanics 52), four hours. Two credits.
- Organic Chemistry (Chemistry 60), seven hours. Five credits.
- Industrial Chemistry. Inorganic (Chemistry 51), three hours. Three credits.
- One technical report, one-half credit.

## SENIOR YEAR.

*First Semester:*

- Metallurgy I (Metallurgy 61E), three hours. Three credits.
- Physical Chemistry (Chemistry 64), six hours. Five credits.
- Optional. One full semester chosen from engineering, mathematical or scientific subjects not required in the course. Five credits.
- Industrial Organic (Chemistry 69), two hours. Two credits.
- Thesis, four hours. Two credits.

## SENIOR YEAR.

*Second Semester:*

Metallurgy II (Metallurgy 62), three hours. Three credits.  
Physical Chemistry (Chemistry 65), seven hours. Five credits.

Assaying and Metallurgical Analysis (Metallurgy 57), ten hours. Two and one-half credits.

Specifications and Contracts (Civil Engineering 52), (b), five hours. Two and one-half credits.

Thesis, six hours. Three credits.



## EQUIPMENT.

The School of Engineering is part of the general University, hence the entire equipment of the University is also equipment of the School of Engineering in all things in which engineering students are concerned. The work of the Engineering School which is common to several schools of the University, such as mathematics, physics, chemistry, languages, etc., is carried on to some extent in buildings and by departments of instruction not exclusively for engineering students; while such work of the School as is technical and exclusively engineering in character is carried on by departments of instruction primarily for engineering students and largely in buildings erected for the special work of the School. Below is described that part of the general equipment of the University which pertains chiefly to the work of this School. For other equipment, see under "The College" and descriptions of other schools of the University.

## BUILDINGS.

The buildings erected exclusively for engineering work are Marvin Hall, the mechanical laboratory in connection with the power plant, and the Fowler Shops. The work in mining is provided for in Haworth Hall. For description of these buildings, see under the heading "Buildings and Grounds."

## LIBRARIES.

The general University library is available for the use of engineering students. Collections of books for special use in connection with the studies in the various scientific and technical departments are to be found in the reading rooms of the departmental libraries of Marvin Hall and other buildings. The leading technical journals are also to be found in these reading rooms.

## DRAWING ROOMS.

In Marvin Hall there are six large, well-lighted drawing rooms, provided with individual tables containing drawers for each student's outfit and cabinets for drawing boards.

On the walls and contained in various print-cases are photographs of actual constructions, and large numbers of blue prints of working drawings for bridges, railway structures, sewers, waterworks, power and light stations, mine plants, etc.

## LABORATORIES.

Numerous and well-equipped laboratories are provided for experimental work in engineering and scientific studies. These laboratories and equipments are described in detail under the descriptions of the various engineering courses and scientific departments.

## INSPECTIONS AND VISITS.

Occasional trips are made by advanced students and their instructors for the purpose of inspecting and studying various engineering works, such as large machine shops, power plants, lighting systems, steam and electric railways, city waterworks, sewerage systems, cement works, mining equipments, and smelters.

## LECTURES AND SOCIETIES.

In each engineering course there is regularly maintained a journal meeting for the review of current engineering literature or a society for the discussion of engineering topics. These societies are described more fully under the heading of "University Organizations." Through the efforts of these societies and of the members of the engineering Faculty, a large number of lectures by practical engineers are secured during the year.

## CIVIL AND MUNICIPAL ENGINEERING.

The instruments for field work in civil engineering comprise transits, levels, compasses, solar attachments, rods, chains, tapes, plane tables, heliotropes, current meter, aneroids, and other minor instruments. Among these are a precise level for very accurate leveling, a secondary triangulation transit for topographical work, and an altazimuth instrument for use on primary triangulations, which has a ten-inch circle, read to single seconds of arc.

For the summer work in surveying a complete camping outfit is provided. Planimeters, Thatcher and Mannheim slide rules, and Colby's stadia slide rules are used for rapid calculation and estimation of quantities.

The testing-of-materials laboratory, situated in the basement of Marvin Hall, is equipped for making tests on all kinds of structural materials.

The principal machines are a 200,000-pound Olsen universal testing machine capable of testing beams up to twenty feet in length and columns up to ten feet in height; two 100,000-pound and one 40,000-pound universal testing machines; a 50,000-inch-pound Olsen torsion machine; a White-Souther alternate-stress machine, and a standard rattler for testing paving brick. The laboratory is well equipped with small apparatus, such as extensometers, both direct-reading and autographic, compressometers, etc.

The concrete laboratory is provided with mixing machinery, molds for making test pieces, and apparatus for the mechanical analysis of sands and cements.

The cement laboratory affords facilities for extended investigation work as well as for the current undergraduate courses.

The road-materials laboratory contains various machines for testing the strength, resistance to abrasion, and the cementing power of the dust of stone, the value of which as material for the building of rock roads is under investigation.

The hydraulic laboratory contains a measuring pit, a large steel orifice tank for experimentation with jets, a triplex power

pump, two centrifugal pumps, pipe lines, weir boxes, gauges, a Venturi meter with manometer, a Pelton water motor, etc., arranged to illustrate the laws of fluid motion, and affording some opportunity for testing hydraulic machinery.

The sanitary laboratory is equipped with apparatus for the investigation of water and sewage. It is not designed to supplant the chemical laboratories, but to afford means for making approximate and quick analyses for engineering purposes of samples suspected of contamination. The laboratory is also to be used in connection with research work along sanitary lines, in connection with an experimental plant for the treatment of the sewage from some of the University buildings.

### ELECTRICAL ENGINEERING.

The electrical engineering laboratories are situated in Marvin Hall and comprise a dynamo laboratory, a standardizing laboratory, a photometer room, and space for the telephone equipment.

The dynamo laboratory is fitted with a complete line of both alternating and direct-current machines, the former varying in capacity from a two-horsepower motor to a 50-kilowatt generator, while the direct-current machines range in capacity from one and one-half kilowatts to 20 kilowatts. These machines have been selected essentially with the view of supplying a complete set of experimental machines and to illustrate modern design and practice in dynamo-electric machinery. Individual motor drive is used for all experimental work, and a chain hoist and trolley have been provided for use in quickly moving any of the machines to the position in which they may be required. Very few permanent connections are used, but the switchboards, connecting boards, and testing tables have all been especially designed to facilitate the connection of any piece of apparatus to a proper power supply. Direct current is supplied from the University power plant, but all other voltage supply is through the agency of motor-generator sets in the laboratory. The machines in this room are used also as sources of current supply for the other electrical laboratories. The assortment of field and load rheostats, transformers, reactance coils, etc., is adequate.

In the standardizing laboratory provision is made for the calibration of all types of electrical measuring instruments and for the study of problems in electrical measurements. The equipment consists of a potentiometer, an A. C. - D. C. comparator; laboratory standard ammeters, voltmeters, and wattmeters; a precise Wheatstone bridge; a portable testing set; an inductance bridge; and a three-element oscillograph. These instruments are all equipped with a complete set of auxiliaries such that any ordinary range of potential or current in either direct or alternating currents may be measured. A storage battery is provided as a source of steady current for use in calibrating instruments. The portable instruments used in the dynamo laboratory are cared for in the standardizing room. This set of instruments is very complete and includes the best



of foreign as well as American manufacture. In addition to the instruments in regular use this set contains portable meters of suitable types and ranges for the tests of power plants or of machines in regular commercial operation.

The photometer room is fitted with a 300-centimeter photometer bar, which is provided with necessary lamp holders and auxiliaries for the testing of the different types of lamps used in artificial illumination. A Bunsen screen, a Lummer-Brodum screen, and a flicker photometer have been provided for use in connection with this bar. A portable photometer of the Sharp-Miller type is used for studying the illumination of streets and buildings.

The telephone laboratory has an assortment of modern telephone apparatus. This includes complete sets for illustrating installations, of both local battery and central energy types. The best selective systems are represented, as well as a complete small automatic telephone system.

### MECHANICAL ENGINEERING.

The new mechanical laboratory is a room 48 by 100 feet, with a gallery 16 feet wide extending across one end and along one side about 60 feet. On the gallery floor are office, computing room, storeroom, instrument room, oil room fitted up with special apparatus for testing lubricants, and a fuel-testing room equipped with a Mahler bomb calorimeter, a Parr calorimeter, and apparatus for coal and gas analysis.

On the main floor are installed a 100-horsepower experimental boiler of Stirling water-tube type; an independently fired Foster superheater; a 10 by 24 by 30-inch cross-compound Monarch Corliss steam engine, arranged to belt to a 55-kw. direct-current generator; a 75-horsepower Ball automatic high-speed engine; a 20-horsepower De Laval steam turbine coupled to a centrifugal pump used for circulating water for the condenser; a 10-horsepower Atlas slide-valve engine; a C. H. Wheeler surface condenser of 600 square feet surface, equipped with wet and dry vacuum pumps; a 100-horsepower two-cylinder tandem Riverside gas engine direct-connected to the 55-kw. generator above mentioned; two 8-horsepower gas or gasoline engines; a 75-horsepower Smith suction gas producer; a five-ton Cleveland ammonia compressor, motor driven, with submerged condenser and fittings complete, including a small ice box (can system), and an auxiliary brine cooler; several special lubricant-testing machines; a complete air-brake outfit for train service; and other minor pieces of apparatus. There is installed a small refrigerating plant and a blower-testing outfit, and an automobile-testing plant is being installed. A representative outfit of engine indicators, steam calorimeters, etc., is owned by the department.

### MINING ENGINEERING.

The new building for geology and mining (Haworth Hall) was so planned as to give excellent opportunity for the concentration of ores. The ore-dressing laboratory, 40 by 80 feet, is



connected to the main building by a corridor, and is so placed on a slope that the floor is divided into four steps, allowing ore to be carried from one floor to the other by gravity. The equipment consists of crushing, screening, and classifying apparatus of various kinds, giving practice in all of the principal processes of ore dressing. There has recently been added a coal-washing plant for experimental work on a large scale. The mining museum contains models of mines and a collection of mills and apparatus used in mining and milling operations. A large laboratory has been equipped for making a thorough and complete examination of the clays of Kansas.

### CHEMICAL ENGINEERING.

The chemical laboratories are located in the Chemistry and Pharmacy Building. They contain separate rooms for general chemistry, qualitative analysis, quantitative analysis, organic chemistry, physical chemistry, water analysis, food analysis, assaying, and metallurgy. Dispensing and balance rooms and the offices of the instructors are conveniently located about the building. There are several lecture and recitation rooms, the largest seating more than three hundred students. There is also a departmental library, containing sets of the principal chemical journals, as well as a careful selection of reference books upon the subject. The department is well supplied with all the necessary and usual apparatus for lecture illustration and demonstration, for laboratory work in all the undergraduate courses, together with adequate equipment for effective graduate and research work in analytical, organic, physical, industrial, and metallurgical chemistry. A somewhat unusual piece of equipment is a well-working liquid-air plant, which affords excellent opportunity for work at low temperatures.

### THE FOWLER SHOPS.

The equipment of the shops is selected with a view to its being the means of teaching modern methods of machine construction, rather than to develop individual skill. The order of progress of the student through the various departments is consistent with the same idea.

In producing castings for machines the first step of pattern making is provided for, in a room 50 by 80 feet on the second floor, by benches and bench tools of high class, sufficient for a class of eighteen in a single section; twelve Richardson 11 by 28-inch speed-lathes with full tool equipment; a complete pattern-maker's lathe, 18 in. by 12 ft., and a 7-foot face-plate lathe; a combination table saw, an Oliver band saw, and a scroll saw; a power-driven boring machine and a sandpapering machine; and special hand tools to facilitate accurate and rapid work. The second step—that of the actual casting—is provided for by foundry equipment in a room 60 by 66 feet, consisting of a Whiting melting cupola of one and one-half tons capacity per hour; a brass furnace complete; an automatic molding machine; a core machine and full equipment for core work; and all neces-

sary hand tools for work in a molding room, arranged in typical modern fashion. An elevator to the cupola-charging platform, and a geared tumbler and a grinder for cleaning castings, are included.

For preparing wrought metals, and for making cutting tools, the forge shop, 40 by 50 feet, is equipped with sixteen Sturtevant down-draft forges and one one large forge for heavy work, with a full complement of smithing tools, a Little Giant power hammer to facilitate rapid work and to familiarize students with its use.

For the final work of machine construction, the machine shop, a room 50 by 80 feet, is supplied with fourteen 14 in. by 6 ft. Standard engine lathes; one 18 in. by 12 ft. and one 14 in. by 5 ft. Challenge engine lathes with full attachments; one Jones and Lawson 2 in. by 24 in. turret lathe with chucking attachments; one 26 in. by 26 in. by 7 ft. Gray planer; one Universal milling machine with spiral gear cutter and all attachments; a horizontal boring mill of late pattern; one 15 in. crank shaper; one 25 in. Challenge drill press with automatic feed; three 20 in. drill presses; one sensitive drill press; one 1½ in. bolt cutter; one Universal cutter and reamer grinder; one Yankee drill grinder; and other power dry and wet grinders, etc. The room has 160 feet of benches with twenty vises and a good outfit of hand tools, which, with stock and supplies, are kept in a tool room under the care of a skilled attendant, the students being held to a rigid observance of shop rules. Electric-motor drive by the group system is used throughout the shop.

### THE POWER PLANT.

The new power plant is in the same building with the mechanical engineering laboratory, and is designed for the double purpose of furnishing light and power to the entire University and of giving engineering students an opportunity to study the power costs with modern equipment.

The boiler-room equipment consists of two 150-horsepower Bonus-Kennicott water-tube boilers, equipped with Jones under-feed stokers; a Sturtevant economizer; and an induced-draft system with motor-driven fan. A pressure of 150 pounds is carried. All feed water is metered with a Worthington piston meter, and coal-weighing scales are provided.

In the generator room is a 150-kw. 115-230 volt three-wire direct-current Western Electric generator, direct-connected to an 11 in. by 19 in. by 16 in. cross-compound Ball engine making 225 r. p. m.; a 100-kw. 2300-volt, three-phase 60-cycle Curtis turbo-alternator built by the General Electric Company; a 75-kw. motor-generator set for alternating-current and direct-current, with synchronous motor, by means of which both forms of current may be delivered with one steam machine in operation; one 8 in. by 12 in. by 7 in. by 12 in. compound duplex Advance service pump for the general water supply of the University and one large high-pressure Underwriter's pump for fire protection.

All the main engines and pumps exhaust into one 1200 sq. ft. surface condenser equipped with both wet and dry vacuum pumps for high-vacuum service, and a centrifugal circulating pump. All pumps are motor driven. Crane, pipe and fittings have been used throughout the plant.

The switchboard is of General Electric design, and is fully appointed, with complete outfit of recording and indicating meters. Six single-phase lighting circuits, one three-phase power circuit, and three three-wire direct-current power circuits supply the University buildings through an underground conduit system installed by the Standard Underground Cable Company.

## DESCRIPTION OF COURSES.

All courses that are given in only the first half of a semester are indicated by (a); those given in the second half of a semester by (b). The statement of "hours" refers to the number of hours per week in attendance at class. The value of each course is given in "credits," one credit being equivalent to one hour per week of recitation or lecture carried for a semester. In general, two hours a week per semester in drawing, shop, or laboratory work is regarded as equivalent to one credit.

Courses numbered below 50 belong to the Freshman and Sophomore years. Courses numbered 50 and above to 100 belong to the Junior and Senior years.

### BOTANY.

Associate Professor BILLINGS.

50E.—WATER BACTERIOLOGY. For students in municipal and sanitary engineering. A brief general study of bacteria and their relations to every-day life, and of laboratory methods of cultivating and examining them. Particularly a more detailed study of the water-borne pathogenic forms, and of the bacteria concerned in sewage purification. First semester, six hours, Monday, Wednesday, and Friday, 8 to 10. Three credits. Associate Professor Billings.

For other courses in botany, see "The College."

### CHEMISTRY.

Professor E. H. S. BAILEY.

Professor CADY.

Associate Professor DAINS.

Associate Professor WHITAKER.

Assistant Professor ALLEN.

Assistant Professor C. C. YOUNG.

Mr. RUPERT, Instructor.

Mr. R. K. BAILEY, Assistant Instructor.

2.—ADVANCED INORGANIC CHEMISTRY. Required of Sophomores, first semester. For all but chemical engineering students, lectures and recitations on Monday, Wednesday, and Friday, at 8; laboratory two hours, Tuesday or Thursday, 8 to 10 or 1:30 to 3:30; total of four credits. For chemical engineering students, lectures and recitations on Monday, Wednesday, and Friday, at 8; laboratory four hours, Tuesday and Thursday, 8 to 10 or 1:30 to 3:30; total of five credits. Professor Cady and assistants.

3.—QUALITATIVE ANALYSIS. Required of Sophomores, second semester. For all but chemical engineering students, recitations on Tuesday and Thursday, at 8; laboratory four hours, Monday and Wednesday or Wednesday and Friday, 8 to 10 or 1:30 to 3:30; total of four credits. For chemical engineering students,



recitations on Tuesday and Thursday at 8; laboratory six hours, Monday, Wednesday, and Friday, 8 to 10 or 1:30 to 3:30; total of five credits. Professor Cady and assistants.

4.—ORGANIC CHEMISTRY I. Required of chemical engineering students. Lectures, recitations, and laboratory. Must be preceded by courses 2 and 3. Junior, first semester, seven hours; lecture and recitations, Monday, Wednesday, and Friday; laboratory Tuesday and Thursday, 1:30 to 3:30. Five credits. Associate Professor Dains.

50E.—GAS ANALYSIS. A laboratory course in the quantitative determination of the common gases, analysis of gaseous mixtures, natural gas, flue gases, etc. Must be preceded by course 54. Optional, first semester, four hours, by appointment. Two credits. Assistant Professor Allen.

51.—INDUSTRIAL CHEMISTRY. A study of the manufacture of the technically more important inorganic compounds. Required of chemical engineering students. Junior, second semester, three hours, at 11:15. Three credits. Associate Professor Whitaker.

52E.—ELECTROLYTIC ESTIMATION OF METALS. A laboratory course. Must be preceded by course 54. Optional, second semester, four hours, by appointment. Two credits. Assistant Professor Allen.

53E.—ANALYSIS OF BOILER FEED WATER. Must be preceded by course 54. Optional, first semester, four hours, by appointment. Two credits. Assistant Professor C. C. Young.

54.—QUANTITATIVE ANALYSIS I. Lecture and laboratory work. Must be preceded by course 3. Required of chemical and mining engineering students. Both semesters. First semester, ten hours, 10:15 to 12:15 or 3:30 to 5:30; second semester, ten hours, 10:15 to 12:15. Five credits. Assistant Professor Allen and assistants.

55.—QUANTITATIVE ANALYSIS II. Lecture and laboratory work. Required of chemical engineering students. In the latter part of the course the volumetric analysis of ores and metallurgical products will be taken up. Second semester, ten hours, 1:30 to 3:30. Five credits. Assistant Professor Allen and assistants.

56E.—WATER ANALYSIS. For students in municipal and sanitary engineering. A brief study of the methods of quantitative analysis, followed by laboratory practice in the sanitary analysis of water and sewage and interpretation of the results of sanitary analysis. Second semester, six hours, by appointment. Three credits. Assistant Professor C. C. Young.

60.—ORGANIC CHEMISTRY II. A continuation of course 4. Lectures, recitations, and laboratory work. Must be preceded by course 4. Required of chemical engineering students. Junior, second semester, seven hours, 3:30 to 5:30. Five credits. Associate Professor Dains.

64.—PHYSICAL CHEMISTRY. A course paying special attention to electrochemistry. Lectures and laboratory work. Must be preceded by course 54, or by course 3 and physics 1E and 2E

and mathematics 7. Required of chemical and electrical engineering students; optional for mining engineers. First semester, six hours, at 10:15. Five credits. Professor Cady.

65.—**PHYSICAL CHEMISTRY.** A general course in theoretical and physical chemistry. Lectures and laboratory work. Required of chemical engineering students. Second semester, seven hours, at 10:15. Five credits. Professor Cady.

69.—**ORGANIC INDUSTRIAL CHEMISTRY.** Lecture and recitation on the manufacture of the technically more important organic compounds. Required of chemical engineering students. Senior, second semester, two hours, at 11:15. Two credits. Associate Professor Whitaker.

Other courses in chemistry are open as optionals to chemical engineering students. See "The College."

### CIVIL AND MUNICIPAL ENGINEERING.

Dean MARVIN.

Professor HOAD.

Associate Professor H. A. RICE.

Assistant Professor GARDNER.

Assistant Professor STRADLING.

Mr. MELIN, Instructor.

Mr. HASKINS, Instructor.

Mr. J. O. JONES, Instructor.

1.—**TOPOGRAPHICAL DRAWING.** A study of and practice in the conventional methods of representing topography, coupled with the platting of the results of field practice in connection with surveying. Required of Sophomore civil and mining engineering students, second semester, six hours, Monday and Wednesday, or Thursday and Friday, 1:30 to 4:30. Three credits. Mr. Melin.

2.—**SURVEYING.** Engineer's instruments, their construction and adjustment. Methods of marking and platting land, topographic, mining, and hydrographic surveys. Sources of error and means of controlling the precision of field work. Leveling and earthwork. Required of civil and mining engineering students. Sophomore, second semester, four hours, 10:15 or 11:15, with field practice once a week. Five credits. Assistant Professor Stradling, Mr. Melin, and Mr. J. O. Jones.

3 or 53.—**SUMMER FIELD WORK.** Courses in practical surveying. The character of the work done will vary somewhat from year to year, depending upon the make-up of the body of students that go into camp. Ten hours per day for four weeks, at the close of the college year, in June. Assistant Professor Stradling and assistants.

4.—**STEREOTOMY.** Sophomore, first semester, six hours, Monday and Wednesday, or Thursday and Friday, 1:30 to 4:30. Three credits. Mr. Melin.

50.—**RAILWAY DRAWING.** Railway plats, profiles, and plans for track and small structures. Lectures and drawing-room practice in tracing and blue-printing and in platting the results of field work. Junior, first semester, six hours, Tuesday and

Friday, 1:30 to 4:30. Three credits. Assistant Professor Stradling.

51.—GRAPHICAL STATICS. The properties of equilibrium polygons and other methods of representing the actions of forces, with application to the determination of stresses in beams, roof-trusses, and stone arches. Lectures and drawing. Junior, second semester, six hours, Tuesday and Friday, 1:30 to 4:30. Three credits. Assistant Professor Gardner.

52.—CONTRACTS AND SPECIFICATIONS. An elementary course in the law of contracts, with special reference to engineering practice. The technical features of specifications. Methods of procedure in letting and conducting contract work, and the engineer's relation thereto. Required of all engineering students. Senior, second semester, (b), five hours, at 11:15. Two and one-half credits. Dean Marvin.

54.—HYDRAULIC CEMENT. A laboratory course in testing hydraulic cements and making comparison of their qualities. Reading, experimental work, and reports of tests made. Senior, second semester, two hours, Monday or Thursday, 3:30 to 5:30. One credit. Assistant Professor Gardner.

55.—MASONRY. Character of materials composing masonry. Methods of cutting and dressing stone. Foundations: Cribwork, cofferdams, caissons, piles and pile driving, concrete, pneumatic processes, etc. Senior, first semester, (a), five hours, at 8. Two and one-half credits. Assistant Professor Gardner.

56.—ROADS AND PAVEMENTS. A study of the materials for and methods used in the construction and improvement of country roads and city pavements. Earthwork, drainage, the road foundation, the wearing surface, etc. The economic importance of the "good-roads movement." Junior, second semester, two hours, at 11:15. Two credits. Assistant Professor Gardner.

57.—RAILWAY LOCATION. The principles involved in economic location and construction of railways. Analysis of traffic and operating expenses. The influence of proposed changes in location upon the amount of total revenue from traffic, the bonded debt and the corresponding fixed charges for interest, the operating expense, and the dividend-paying capacity of the road. Junior, second semester, three hours, at 9. Three credits. Assistant Professor Stradling.

58.—RAILWAY SURVEYING. A study of the methods of laying out and constructing railways. The setting out of simple and compound curves and calculation of excavations and embankments. Yards, turnouts, and switches. Easement curves of various types. Calculation of waterways, and methods of staking out foundations for culverts and bridges. This course must be preceded by a general course in surveying. Junior, first semester, four hours, at 10:15 or 11:15, with field practice one-half day per week. Five credits. Assistant Professor Stradling.

59.—SEWERAGE. An elementary course in the collection, removal and disposal of city sewage. Separate and combined sys-



tems. Methods of flushing and ventilating sewers. Principles of the design and construction of sewers and storm drains; of man-holes, flushing devices, inlets, catch basins, inverted siphons, and other sewer appurtenances. Brief study of the purification of sewage by the standard processes. Senior, first semester, (a), five hours, at 11:15. Two and one-half credits. Assistant Professor Gardner.

60.—WATER SUPPLY. An elementary course in the collection, purification and distribution of municipal water supplies. Requisites of a supply as to quality and quantity. Relation of water supply to public health. Sanitary surveys of sources of supply. Collection of water from rivers, lakes, deep and shallow wells, and the design and construction of impounding reservoirs. Distribution systems; materials and design; fire protection; stand-pipes and elevated tanks. Brief study of the design and construction of settling basins, rapid and slow sand filters, and other acceptable devices for the purification of water. Waterworks maintenance and operation; cleansing of water pipes; destruction of algæ in reservoirs. Senior, first semester, (b), five hours, at 11:15. Two and one-half credits. Assistant Professor Gardner.

61.—ROOFS AND BRIDGES. Analytical and graphical calculation of stresses in framed structures under various forms of loading. This course must be preceded by course 51 in mechanics. Senior, first semester, ten hours, 1:30 to 3:30. Five credits. Associate Professor H. A. Rice.

62.—BRIDGE DESIGNING. A study in bridge details and the dimensions of parts. Students work out designs for a plate girder and a simple truss. Must be preceded by course 61. Senior, second semester, ten hours, 1:30 to 3:30. Five credits. Associate Professor H. A. Rice.

63.—ENGINEERING MATERIALS. A study of the methods of manufacture of structural materials and the different means and machines used in their testing. Opportunity will be given for specialization along some particular line, if desired, and considerable experimental work may be done in the laboratory. Recitations, lectures, library, and laboratory work. Optional for Seniors, second semester, five hours, by appointment. Five credits. Associate Professor Corp.

64.—SANITARY ENGINEERING DESIGN. An advanced course, to follow courses 59 and 60. A more detailed study of the principles of good design of engineering works for sewerage and drainage, for the purification of public water supplies, and for the treatment of city sewage and of industrial wastes. Lectures, recitations and library reading; drawing-board designs of typical constructions; visits to sanitary engineering works. Senior, second semester, five hours, at 8. Five credits. Professor Hoad.

65.—REINFORCED CONCRETE. A course of study in the modern theory and practice of the design of beams, floor slabs, columns, retaining walls, conduits, arches, and other forms of reinforced



concrete construction. Mathematical theory, study of plans, and design of typical structures. Optional for Seniors, second semester, (b), five hours, at 9. Two and one-half credits. Assistant Professor Gardner.

66.—MAINTENANCE OF WAY. An advanced course in railway engineering. Optional for Seniors, second semester, five hours, at 8. Five credits. Assistant Professor Stradling.

67.—MUNICIPAL ENGINEERING DRAWING. A drawing-room course dealing with city maps and plats, street profiles and cross-sections, sewerage and drainage maps, standard plans for street pavements, street intersections, catch basins, storm-water drains, concrete bridges, and other work commonly found in a city engineer's office. Junior, first semester, six hours, Monday and Wednesday, 1:30 to 4:30. Three credits. Assistant Professor Gardner.

68.—STREET CLEANING AND GARBAGE COLLECTION AND DISPOSAL. A series of lectures through the semester. A detailed study of methods and costs of cleaning the various forms of street surfaces. A study of modern methods of collecting and disposing of garbage, with reference to the sanitary principles involved as well as the financial aspects of the problem. Junior, second semester, Monday, at 3:30. One credit. Professor Hoad.

69.—SANITARY SCIENCE AND PUBLIC HEALTH PROBLEMS. A broad and general view of the large body of sanitary science upon which the modern practice of sanitation is based. The effects of good practice in such matters as public water supply, sewerage and drainage, state and federal control over the pollution of streams, the elimination of dust and mud and snow from city streets, and the ventilation of public buildings. Senior, first semester, (a), five hours, at 11:15. Two and one-half credits. Professor Hoad.

70.—SANITARY ENGINEERING LABORATORY. A laboratory course in connection with experiment station work in water or sewage purification. Quick approximate methods of testing sewage effluents and of securing information relative to the controlling characteristics of water supplies. Senior, first semester, two hours, Tuesday, 3:30 to 5:30. One credit. Assistant Professor Gardner.

71.—SURVEYING. A briefer course than number 5, primarily for Senior electrical engineering students. First semester, three hours, at 11:15. Three credits. Assistant Professor Stradling.

72.—SANITARY INSPECTION AND REPORTS. Visits to neighboring engineering works of sanitary interest, particularly water-works and water and sewage purification plants, and to various municipal works in process of construction. By appointment. Professor Hoad.

For other courses in civil engineering, see "The College."

## ECONOMICS.

Associate Professor BOYNTON.

3.—ECONOMIC HISTORY OF THE UNITED STATES. Three hours, second semester, at 9. Attention is given to colonial agriculture, industry, and trade. The effect upon American life of the westward expansion, the economic significance of slavery in the South and in the country at large, the industrial development of the North prior to the Civil War, and the resources of the nation and the rise and importance of American manufactures will receive due attention. A survey will be made of the present industrial situation under corporate methods and of the outlook for democratic control of industrial conditions. Associate Professor Boynton.

## ELECTRICAL ENGINEERING.

Professor SHAAD.

Assistant Professor C. A. JOHNSON.

Mr. HANSON, Laboratory Assistant.

Courses 50 to 52, and 54 to 58, inclusive, and 60 to 61 are required of all electrical engineering students. Courses 50, 51, 54, and 55 are required of mechanical engineering students. Courses 59 and 62 are optional for electrical engineering students.

50.—DYNAMO MACHINERY. Theory of direct-current generators and motors. Prerequisites, physics 1E and 2E. Junior, first semester, three hours, at 11:15 for electrical engineering students and at 8 for mechanical engineering students. Three credits. Assistant Professor C. A. Johnson.

51.—THEORY OF ALTERNATING CURRENTS. A mathematical treatment of alternating-current phenomena and the theory of alternating-current machinery, fundamental types. Prerequisite, course 52. Junior, second semester, five hours, at 11:15 for electrical engineering students and at 8 for mechanical engineering students. Five credits. Professor Shaad.

52.—DYNAMO MACHINERY. Advanced theory of alternating-current machinery. Senior, first semester, five hours, daily, at 8. Five credits. Professor Shaad.

54.—ELECTRICAL LABORATORY. An experimental course for the purpose of illustrating the principles of direct-current dynamo machinery and acquainting the student with the types and performance of direct-current apparatus. Must be preceded or accompanied by course 50. Junior, first semester, four hours, two days per week on alternate weeks, 1:30 to 5:30. Two credits. Assistant Professor C. A. Johnson, and Mr. Hanson.

55.—ELECTRICAL LABORATORY. A continuation of course 54. Must be preceded or accompanied by course 51. More advanced work with direct-current machinery is given and experiments with alternating-current apparatus are introduced. Some time is devoted to the calibration of electrical instruments. Junior, second semester, four hours, two days per week on alternate

weeks, 1:30 to 5:30. Two credits. Assistant Professor C. A. Johnson, and Mr. Hanson.

56.—ELECTRICAL LABORATORY. Advanced experiments with electrical machinery and the testing of machines, chiefly of alternating-current types. Must be accompanied by course 52. Senior, first semester, three hours, two days per week, 1:30 to 4:30. Three credits. Professor Shaad, and Mr. Hanson.

57.—ELECTRIC LIGHTING. A course in illumination and photometry in which the available light sources are studied, and the methods of application to artificial illumination of streets and buildings. Laboratory and field work in the measurement of light sources and illumination. Senior, second semester, (a), five hours, at 11:15. Two and one-half credits. Assistant Professor C. A. Johnson.

58.—ELECTRIC POWER TRANSMISSION. A series of lectures and recitations devoted to the study of the principles involved and the methods used in the design of transmission and distributing systems. Prerequisite, course 52. Senior, second semester, (a), five hours, at 9. Two and one-half credits. Assistant Professor C. A. Johnson.

59.—ELEMENTARY TELEPHONY. Lectures, recitations, and laboratory work. The principles that underlie all telephone apparatus, and practical experiments with the fundamental telephone transmitters, receivers, and central-station arrangements. Optional, Juniors or Seniors, second semester, five hours, by appointment. Five credits. Professor Shaad.

60.—ELECTRIC RAILWAYS. The theory and practice of the design, construction, and operation of electric railway systems. Prerequisite, course 58. Senior, second semester, (b), five hours, at 9. Two and one-half credits. Assistant Professor C. A. Johnson.

61.—PROFESSIONAL THESIS. Senior, first semester, two hours, and second semester, six hours, by appointment. Professor Shaad, or other instructors, according to the line of work chosen.

62.—ELECTRICAL ENGINEERING PRACTICE. The discussion of practical engineering problems as presented to the professional engineer and the determination of the most suitable electrical machinery to be selected for the work to be done. The course is complementary to mechanical engineering 59. Optional, Seniors, second semester, three hours, at 10:15. Three credits. Professor Shaad.

## ENGLISH LANGUAGE AND LITERATURE.

Assistant Professor RAYMOND.  
Mr. PALMER, Instructor.  
Mr. REED, Instructor.

The instruction in this department, while in essentials parallel to that in the College, is shaped with special reference to the other work of engineering students. The three courses here numbered are required before graduation; for students who wish



to spend more time in work of this kind a research class is provided, and appropriate classes in the College are open.

1E.—RHETORIC. Written exercises and papers, with study of language usage. Required of all Freshmen. First semester, three hours, at 8, 9, 10:15, 11:15, 3:30, or 4:30. Three credits. Assistant Professor Raymond and assistants.

2E.—RHETORIC. Continuation of course 1. Second semester, two hours, at 8, 9, 10:15, 11:15, 3:30, or 4:30. Two credits. Assistant Professor Raymond, and assistants.

50E.—ADVANCED COMPOSITION. Practice in the gathering and analyzing of material, and in the presentation of information and opinion in scientific papers, and study of the methods used in these and other papers. Required of all students, one semester in Junior or Senior year, three hours: first semester, at 8; second semester, at 9. Three credits. Assistant Professor Raymond.

INDEXING AND RESEARCH IN THE LITERATURE OF ENGINEERING SCIENCE. Informal class, with headquarters in the office of this department, meeting once a week for conference, and working in the material of the engineering library.

The department of English is provided with references, illustrative matter, and other helps for reading in general and in engineering literature, and in the preparation of special papers.

## GEOLOGY.

Professor HAWORTH.

Assistant Professor TODD.

Assistant Professor TWENHOFEL.

1.—ELEMENTARY GEOLOGY. A study of the elementary principles of geology, including a general outline of geologic principles and geologic agencies. An acquaintance with the elements of chemistry, zoölogy, and botany will be of advantage in this course. Required of Junior civil and Sophomore mining engineering students; first semester, five hours, at 9, 10:15, 11:15, or 2:30; second semester, at 9, 10:15, 11:15, or 2:30. Five credits. Assistant Professor Todd and Assistant Professor Twenhofel.

52.—ECONOMIC GEOLOGY I. A general study of the metallic and nonmetallic products of the mine and quarry, considered from a scientific and practical standpoint, including the nature, origin, amount and geographic and geologic distribution of the same. Must be preceded by elementary chemistry and course 1, or mineralogy 1E. Required of Junior mining engineering students, first semester, lectures and library work, three hours, Monday, Wednesday, and Friday, at 9. Three credits. Professor Haworth.

53.—ECONOMIC GEOLOGY II. A continuation of course 52. Nonmetallic products. Second semester, two hours, Tuesday and Thursday, at 10:15. Two credits. Professor Haworth.

Other courses in geology are open as optionals to engineering students. For details, see the courses listed under "The College."



GERMAN.

Associate Professor ENGEL.  
Assistant Professor BRIGGS.

1.—OUTLINE OF GRAMMAR. The first twenty-two lessons of Carruth's Otis's Grammar, with composition exercises; Carruth's Reader, about fifty pages. First semester, five hours, at 9. Five credits. Associate Professor Engel and Assistant Professor Briggs.

2.—READER AND GRAMMAR. The last eight lessons of Carruth's Otis's Grammar; Carruth's Reader completed; Hoyse's Die Blinden as a basis for narrative and conversation, and Schiller's Wilhelm Tell. Second semester, five hours, at 1:30. Five credits. Assistant Professor Briggs.

3.—GERMAN PROSE. Lessing's Minna von Barnhelm; extracts from Schiller's Der dreissigjährige Krieg, preceded by a review of grammar. First semester, five hours, at 8. Five credits. Associate Professor Engel and Assistant Professor Briggs.

4.—SCHILLER'S WALLENSTEIN; SCIENTIFIC PROSE. Second semester, five hours, at 10:15. Five credits. Associate Professor Engel.

MATHEMATICS.

Associate Professor ASHTON.  
Assistant Professor WHITE.  
Assistant Professor JORDAN.  
Mr. WHEELER, Instructor.  
Mr. HASSLER, Instructor.

2.—COLLEGE ALGEBRA. Rapid review of elementary algebra; graphic representation; logarithms; determinants; theory of equations; Horner's method of approximation. Ashton's College Algebra. Required of all Freshmen in the School of Engineering, both semesters: first semester, three hours, at 8, 9, 10:15, 11:15, 2:30, or 3:30; second semester, three hours, at 3:30. Three credits. Assistant Professor Jordan, Mr. Wheeler, and Mr. Hassler.

3.—PLANE TRIGONOMETRY. The six trigonometric functions; principal formulas of plane trigonometry; solution of triangles and practical problems. Ashton's Trigonometry. Required of all Freshmen in the School of Engineering, both semesters: first semester, two hours, at 8, 9, 10:15, 11:15, 2:30, or 3:30; second semester, two hours, at 1:30 or 3:30. Two credits. Assistant Professor Jordan, Mr. Wheeler, and Mr. Hassler.

4.—ANALYTICAL GEOMETRY I. The straight line and circle; loci problems. Required of all Freshmen in the School of Engineering, both semesters: first semester, two hours, at 9 or 10:15; second semester, two hours, at 8, 9, 10:15, 11:15, or 2:30. Two credits. Associate Professor Ashton, Assistant Professors White and Jordan, Mr. Wheeler, and Mr. Hassler.

5.—CALCULUS I. Differential calculus; fundamental principles; derivatives; applications to geometry and mechanics; maxima and minima; indeterminates; series. Required of all Fresh-

men in the School of Engineering, both semesters: first semester, three hours, at 9 or 10:15; second semester, three hours, at 8, 9, 10:15, 11:15, or 2:30. Three credits. Associate Professor Ashton, Assistant Professors White and Jordan, Mr. Wheeler, and Mr. Hassler.

6.—ANALYTICAL GEOMETRY II. Conic sections; higher plane curves; solid analytics. Required of all Sophomores in the School of Engineering, both semesters: first semester, two hours, at 9, 10:15, or 11:15; second semester, two hours, at 9 or 10:15. Two credits. Associate Professor Ashton, and Assistant Professors White and Jordan and Mr. Wheeler.

7.—CALCULUS II. Integral calculus; integration; definite integrals; applications to length, areas, and volumes. Required of all Sophomores in the School of Engineering, both semesters: first semester, three hours, at 10:15, or 11:15; second semester, three hours, at 9 or 10:15. Three credits. Associate Professor Ashton, and Assistant Professors White and Jordan and Mr. Wheeler.

9E.—CALCULUS III. Application of calculus to problems in solid geometry; centers of gravity; moments of inertia; differential equations. Required of all Sophomores in the electrical and mechanical engineering courses. Both semesters: first semester, two hours, at 9; second semester, two hours, at 9 and 10:15. Two credits. Associate Professor Ashton, and Assistant Professor White.

10E.—SELECTED TOPICS IN ENGINEERING MATHEMATICS. Complex numbers and vectors; exponential and trigonometric series; differential equations of electrical and mechanical engineering; empirical curves; methods of approximation and numerical calculation. The course may be modified to suit the needs of the class. Optional for Juniors and Seniors. Second semester, three hours, by appointment. Assistant Professor Jordan.

For other courses in mathematics, see "The College."

## MECHANICS.

Associate Professor H. A. RICE.  
Associate Professor HOOD.  
Associate Professor CORP.  
Assistant Professor COCHRAN.  
Mr. J. O. JONES, Instructor.

1.—ELEMENTARY MECHANICS. An elementary course, requiring some knowledge of elementary physics and trigonometry. Freshman, first semester, two hours, Tuesday and Thursday, at 8, 9, 10:15, 11:15, 3:30, or 4:30. Two credits. Associate Professor Hood, Assistant Professor Cochran, and Mr. J. O. Jones.

50.—MECHANICS. A study of the laws of statics and dynamics. Action of forces upon bodies and the resulting motions. Required of all engineering students. Junior, first semester, five hours, at 8 or 9. Five credits. Associate Professor H. A. Rice and Associate Professor Hood.

51.—STRENGTH OF MATERIALS. The theory of resistance to stress and application to engineering construction. Required of all engineering students. Junior, second semester, four hours, at 8 or 10:15. Four credits. Associate Professor H. A. Rice, and Associate Professor Corp.

52.—TESTING OF MATERIALS. A laboratory course to accompany course 51. The testing of iron, steel, wood, and other materials of construction for resistance to tension, compression, torsion, bending, and shearing. Experimental determination of the limits of safe loading. The testing of paving brick. Junior, second semester, four hours, Monday, Wednesday, Thursday, or Friday afternoon, or Saturday morning. Two credits. Associate Professor Corp, and Mr. J. O. Jones.

53.—HYDRAULICS. A study of the laws governing the pressure and flow of liquids and gases and the force of and resistance to their motion. Required of civil and mechanical and optional for mining engineering students. Senior, first semester, (a), four hours, at 10:15. Two credits. Associate Professor Corp, and Mr. J. O. Jones.

54.—HYDRAULIC LABORATORY. A course to accompany course 53 and the course in hydraulic machinery. Experimental work with the flow of water over weirs, through orifices and pipes, and in testing hydraulic machinery. Required of civil and mechanical engineering students. Senior, first semester, two hours, Monday, Wednesday, or Friday, 3:30 to 5:30. One credit. Associate Professor Corp.

## MECHANICAL DRAWING.

Associate Professor HOOD.  
Assistant Professor COCHRAN.  
J. O. JONES, Instructor.

1.—FREE-HAND DRAWING. Engineering lettering in pencil and in ink. Free-hand working sketches of simple machine parts. Freshmen, first six weeks of first semester; Monday, Wednesday, and Friday, 8 to 10, 10:15 to 12:15, 1:30 to 3:30, 3:30 to 5:30, Tuesday and Thursday, 1:30 to 3:30 and Saturday 8 to 10, or Tuesday and Thursday from 3:30 to 5:30 and Saturday 10 to 12, six hours. One credit. Associate Professor Hood, Assistant Professor Cochran and Mr. J. O. Jones.

2.—ELEMENTARY MECHANICAL DRAWING. Working drawings of simple machine parts. Penciling, tracing, and blue-printing. Detailing machine parts from assembly drawings. Freshman, last fourteen weeks of first semester, same hours as in course 1, six hours. Two credits. Associate Professor Hood, Assistant Professor Cochran, and Mr. J. O. Jones.

3.—DESCRIPTIVE GEOMETRY. Principles of projection. Execution of a number of original exercises. Freshman, second semester, three hours, at 8, 9, 10:15, 11:15, 2:30, or 3:30. Three credits. Associate Professor Hood, Assistant Professor Cochran, and Mr. J. O. Jones.



4.—MACHINE DRAWING. Sketching of machine parts and preparation of working drawings; detailing of machines from sketches, notes, assembly drawing, and assembled machines; tracing and blue-printing; notes and lectures on drafting-room methods. Each student prepares complete drawings for some simple machine. Freshman, second semester, same hours as in course 1, six hours. Three credits. Associate Professor Hood, Assistant Professor Cochran, and Mr. J. O. Jones.

### MECHANICAL ENGINEERING.

Professor WALKER.  
Associate Professor CORP.  
Assistant Professor SLUSS.  
Mr. FISHER, Laboratory Assistant.

1.—MACHINE DRAWING. Making of working drawings from sketches of assembled parts, followed by an assembly drawing from detailed working drawings. Sophomore, first semester, Monday and Wednesday or Thursday, 1:30 to 4:30, and Saturday, 9 to 12, six hours. Three credits. Assistant Professor Sluss.

2.—KINEMATICS. A study of the motion of machine parts and of methods of transmission of motion by gears, belts, cams, etc. Recitations and drawing for mechanical and electrical students. Text, Dunkerley's "Mechanism." Sophomore, second semester, Monday and Wednesday, or Tuesday and Thursday, 1:30 to 4:30, six hours. Three credits. Assistant Professor Sluss.

50.—STEAM-ENGINE DESIGN. Valve-gear designing; the design of a shaft inertia governor; analysis of forces due to steam pressure; crank-effort diagrams and fly-wheel design. Text, Halsey's "Valve Gears." Senior, first semester, four hours, Tuesday and Thursday, 8 to 10. Two credits. Assistant Professor Sluss.

51.—MACHINE DESIGN. Analytical and graphical solution of problems in the design of machine parts, transmission and hoisting devices. Junior, second semester, four hours, Monday and Wednesday, at 9, and Friday, 1:30 to 3:30. Three credits. Assistant Professor Sluss.

3.—STEAM MACHINERY. (a) Fuels, combustion, and steam generation. (b) A study of boiler and engine types, and engine mechanism. Principal text, Kent's "Steam Boiler Economy." Sophomore, second semester, two hours, Monday and Wednesday, at 10:15 or 11:15. Two credits. Assistant Professor Sluss.

53.—ENGINES AND BOILERS. A brief study of the general problem of steam-power generation from the standpoint of the installing engineer. Text, "Heat Engines," by Allen and Bursley. Required of civil engineering students. Junior, second semester, Tuesday, Thursday, and Friday, at 11:15, and five exercises in the steam laboratory on Saturday, 8 to 12. Four credits. Professor Walker and Mr. Fisher.

54.—HEATING AND VENTILATION. Laws of heat transfer; amount of air required for ventilation; methods and apparatus



employed in modern buildings; central heating plants. Senior, second semester, two hours, at 9. Two credits. Associate Professor Corp.

55.—GAS-ENGINE DESIGN. Theory and practice of gas-engine design and construction. Text, Lucke's "Gas-engine Design." Senior, first semester, one hour class, Monday, at 1:30, four hours, laboratory, Tuesday, 1:30 to 5:30. Three credits. Professor Walker.

56.—HYDRAULIC MACHINERY. A study of types of pumping machinery, with special reference to city water supply, sewerage, and irrigation plants. First cost and maintenance of plant and economy in operation; study of water-power development. Lectures, assigned reading, and reports. Senior, first semester, (b), four hours, at 10:15. Two credits. Associate Professor Corp.

57.—THERMODYNAMICS. The relations between heat and mechanical energy; theory of heat engines. Must be preceded by physics 1E and calculus. Text, Ennis's "Thermodynamics." Required of mechanical and electrical engineering students. Junior, first semester, at 10:15 or 11:15. Four credits. Professor Walker.

58.—STEAM-TURBINE DESIGN. Calculation and design of nozzles and blading of impulse and reaction types of turbines, and structural design. Text, Moyer's "Steam Turbine." Senior, second semester, two hours class, (a), Monday and Wednesday, at 11:15, and four hours designing, Monday, 1:30 to 5:30. Three credits. Professor Walker.

59.—ENGINEERING PRACTICE. Modern industrial plant organization, cost accounting, and plant management; comparative study of power costs with different prime movers. Lectures, assigned reading, and problems. Senior, second semester, two hours, Tuesday and Thursday, at 10:15. Two credits. Professor Walker.

60.—ENGINEERING LABORATORY. (a) Theory and use of planimeters; calibration of apparatus; cement testing; valve setting; (b) for Senior electricals, efficiency tests of steam boiler and engine, injector, and gasoline engine, with complete thermal analysis. (b) For Junior mechanicals, flue gas analysis, proximate analysis of coal, coal calorimetry, and tests for physical properties of lubricating oils. First semester, four hours, Tuesday or Thursday, 1:30 to 5:30. Two credits. Associate Professor Corp, Assistant Professor Sluss, and Mr. Fisher.

61.—ENGINEERING LABORATORY. Experimental engineering methods and engineering literature bearing upon power development. Laboratory tests of steam and gas prime movers, compressors, refrigerating units, etc. Drill in report-writing. Must be preceded by thermodynamics and gas-engine design, and be accompanied by steam-turbine design. Senior, second semester, one hour class, Monday, at 10:15; four hours laboratory, Tuesday, 1:30 to 5:30. Three credits. Professor Walker.

62.—MECHANICS OF THE STEAM ENGINE. Course outlined in course 50 is followed through for a particular engine, together with the design of the engine parts. Also, problems in the mechanical transmission of power. Required for electrical students. Junior, second semester, three hours, Monday, Wednesday, and Friday, at 8. Three credits. Assistant Professor Sluss.

63.—THESIS. Senior, first semester, Thursday, 1:30 to 3:30; second semester, Friday, 1:30 to 5:30. Three credits. Professor Walker.

64.—SUMMER VACATION WORK. Two months to be spent in regular work in some shop or manufacturing plant of good standing. A report on this work, with a certified statement from the shop foreman or the superintendent, must be presented before credit can be given.

For courses open to graduate students, see "Graduate School."

## METALLURGY.

Associate Professor WHITAKER.

57.—ASSAYING AND METALLURGICAL ANALYSIS. The first half of the semester is devoted to the fire assay of gold, silver, and other metals; the second half to the volumetric assay of ores and furnace products. Junior mining engineering students are required to take the entire course, and receive five credits; the Senior chemical engineering students are required to take fire assaying the first half of the semester, and will receive two and one-half credits. Second semester, five or ten hours, two afternoons per week. Two and one-half or five credits. Associate Professor Whitaker.

61E.—METALLURGY I. General metallurgy and metallurgy of iron and steel. Lecture and recitations. Must be preceded by chemistry 3. Required of Junior mechanical engineering students and Senior chemical engineering students. First semester, three hours, at 9. Three credits. Associate Professor Whitaker.

62E.—METALLURGY II. Metallurgy of lead, zinc, and copper, followed by that of silver, gold, mercury, and tin. Prerequisite, chemistry 3. Required of Senior mining and chemical engineering students. Second semester, three hours, at 9. Three credits. Associate Professor Whitaker.

63.—METALLURGICAL LABORATORY. Pyrometric and calorimetric measurements, preparation of silicates and alloys, oxidation and reduction reactions, amalgamation, chlorination, cyaniding and leaching, etc. Optional for Juniors, Seniors, and graduate students who have taken or are taking metallurgy 61 or 62. Either semester, two hours, by appointment. Associate Professor Whitaker.

64E.—GENERAL METALLURGY. A repetition in briefer form of course 61E. Required of Senior mining engineering students, second semester, two hours, at 9. Two credits. Associate Professor Whitaker.

## MINERALOGY.

Professor HAWORTH.

Assistant Professor TODD.

1E.—ELEMENTARY MINERALOGY I. A brief course in crystallography, blowpipe analysis, and systematic mineralogy, consisting of lectures and laboratory work. Sophomore, second semester, five hours, 3:30 to 5:30. Five credits. Assistant Professor Todd.

Other courses in mineralogy are open to engineering students as optionals. For these, see "The College."

## MINING ENGINEERING.

Professor HAWORTH.

Associate Professor C. M. YOUNG.

Associate Professor HUMBLE.

Mr. BROWN, Laboratory Assistant.

50.—MINING. Underground surveying, to be supplemented by field work. Excavation for mining purposes, quarrying, boring for gas, oil, and water. Manufacture and use of explosives. Sinking of shafts, tunneling, support of underground excavations. Lectures and recitations. Junior, first semester, five hours, at 8. Five credits. Associate Professor C. M. Young.

51.—ORE DRESSING. Methods used for the separation and concentration of valuable minerals. Recitations, lectures, and laboratory work. Richard's "Text Book of Ore Dressing." Junior, first semester, two hours, at 9, (two credits); second semester, three hours, at 10:15, (three credits). Associate Professor C. M. Young.

52.—POWER, EXTRACTION, DRAINAGE, VENTILATION. Steam, compressed air, and electricity as applied to mining; mining hydraulics and the drainage of mines; handling of ore underground and on the surface; ventilation; mine accidents. Senior, first semester, five hours, at 10:15. Five credits. Associate Professor C. M. Young.

53.—SAMPLING AND EXPLOITATION. Methods of sampling, developing, and working mineral deposits, including studies of important mining districts. Senior, second semester, (a), five hours, at 11:15. Two and one-half credits. Associate Professor C. M. Young.

54.—MINE PLANT. Equipment necessary for the exploitation of mineral deposits and of important examples; building materials, foundations, mine buildings; the design of mine plants. Optional for students of mining engineering. Senior, second semester, five hours, at 9. Five credits. Associate Professor C. M. Young.

55.—MINE ADMINISTRATION. Mine accounts and management; care of sick and injured in case of accident; rules and regulations for equipping expeditions and maintaining camps. Optional for mining engineering students. Senior, first semester, (a), five hours, by appointment. Two and one-half credits. Associate Professor C. M. Young.



56.—**COAL MINING.** Methods of working coal beds and of handling coal. Properties of mine gases; safety lamp; explosives; ventilation; cause and prevention of explosions. May be substituted for mining 52. Open to students not enrolled in the course in mining engineering. Second semester, five hours, at 9. Five credits. Associate Professor C. M. Young.

57.—**MINING LAW.** Outline of the laws relating to the mining industries. Recitations and lectures. Second semester, one hour, in alternate years. (Given in 1912-'13.) Associate Professor Humble.

58.—**PROFESSIONAL THESIS.** This may be an elaborate description of a mining or metallurgical plant or of a mining district, or may be founded upon research work done at the University.

59.—**SUMMER WORK.** Each candidate for a degree is required to give evidence of having had experience in some phase of mining work. This may be gained by an investigation of some mining district under the direction of an instructor for a period of six weeks, or by employment in mining work.

### PHYSICS.

Professor KESTER.

Associate Professor M. E. RICE.

Assistant Professor STIMPSON.

Mr. T. T. SMITH, Instructor.

Mr. ———, Instructor.

1E.—**GENERAL PHYSICS.** A fundamental course of experimental lectures, recitations, and problems. Prerequisites, plane trigonometry and some knowledge of analytical geometry and calculus. Sophomore, first semester; lectures and recitations on Monday, Tuesday, Wednesday, and Thursday, at 10:15 or 11:15; laboratory two hours, Tuesday or Thursday, at 8 to 10, or Monday, Wednesday, or Friday, 1:30 to 3:30. Given also second semester; lectures and recitations on Monday, Tuesday, Wednesday, and Thursday, at 10:15; laboratory two hours, Wednesday or Friday, 1:30 to 3:30. Five credits. Associate Professor M. E. Rice, and other instructors.

2E.—**GENERAL PHYSICS.** A continuation of course 3. Sophomore, second semester, lectures and recitations on Monday, Tuesday, Wednesday, and Thursday, at 11:15; laboratory two hours, Monday, Wednesday, or Friday, 8 to 10, or Monday, 1:30 to 3:30. To be given, also first semester, at 10:15, after 1912-'13. Five credits. Associate Professor M. E. Rice, and other instructors.

52.—**THEORY OF ELECTRICITY AND MAGNETISM.** Junior, first semester, three hours, at 9. Three credits. Associate Professor M. E. Rice.

60E.—**ELECTRICAL MEASUREMENTS I.** A laboratory course co-ordinate with 52. First semester, four hours per week, by appointment. Two credits. Associate Professor M. E. Rice.



61E.—ELECTRICAL MEASUREMENTS II. Continuation of course  
60E. Second semester, four hours, by appointment. Two credits.  
Associate Professor M. E. Rice.

For other courses in physics, see "The College" and "The Graduate School."

### ROMANCE LANGUAGES.

Professor GALLOO.  
Assistant Professor WINTER.  
Miss MAY GARDNER, Instructor.

#### *French.*

1.—ELEMENTARY FRENCH I. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation, accidence, and easy syntax. Open to students who have had three years of Latin or German. First semester, five hours, at 1:30. Five credits. Miss Gardner.

Students who have had only two years of Latin or German form a distinct section, meeting at 8.

2.—ELEMENTARY FRENCH II. A continuation of course 1. Reading of simple prose texts, with exercises in dictation and elementary composition. Second semester, five hours, at 1:30. Five credits. Miss Gardner.

For advanced courses in French, see "The College."

#### *Spanish.*

1.—ELEMENTARY SPANISH I. An outline of grammar (Hills and Ford). Reading of short stories. Elementary composition. Open to students who have had three years of Latin, French, or German. First semester, five hours, at 9, 11:15, or 1:30. Also second semester, five hours, at 2:30. Five credits. Assistant Professor Winter, and Miss Gardner.

Students who have had only two years of Latin, French, or German form a distinct section, reciting during the first semester at 1:30.

2.—ELEMENTARY SPANISH II. Grammar and composition. Reading of easy modern prose: Carrión-Aza, Pérez, Galdós, Palacio Valdés, etc. Second semester, five hours, at 9, 11:15, or 1:30. Five credits. Assistant Professor Winter, and Miss Gardner.

For advanced courses in Spanish, see "The College."

### SHOP WORK.

Assistant Professor F. E. WARD.  
Assistant Professor F. E. JONES.  
Mr. WILTFONG, Instructor.  
Mr. LANDRUM, Assistant Instructor.

SHOP 1.—FORGING. The regular beginning course for students in engineering, consisting of working wrought iron, mild steel, and tool steel; pointing, heading, welding, etc.; making tool-steel tools, such as punches, cold chisels, lathe tools, and

pliers. The work is given as outlined in the textbook containing illustrations and drawings and discussions on such subjects as smithing coal, the making of wrought iron and how to work it; also methods of working mild steel and tool steel. Five hours a week. Two and one-half credits. Mr. Wiltfong.

**SHOP 2.—PATTERN MAKING AND MOLDING.** Joining, wood turning, pattern making, and the elements of molding; the proper use of hand and lathe tools; methods of molding, making cores, casting, and the relation of the pattern to foundry work, and actual molding in the foundry. The essential features peculiar to pattern work, such as draft, shrinkage, fillets, core prints, core boxes, and the construction of patterns to prevent distortion by shrinking or warping; lectures and recitations. Five hours. Two and one-half credits. Assistant Professor F. E. Jones, and Mr. Landrum.

**SHOP 3.—BENCH AND FOUNDRY WORK.** Exercises in filing, key fitting, drilling holes, riveting, chipping, and scraping to a true surface; also, the making of calipers and side-cutting pliers. This work brings into use the steel hand tools and pliers made by the student while taking shop 1. Work with machine tools in drilling, grinding and polishing. One-third of the work will be in the foundry, a continuation of the foundry work begun in shop 2. Lectures, recitations, and laboratory practice in molding, core making, sand and plaster matches, metal match-plate patterns, mixing, melting and casting nonferrous alloys, cupola management, analyses, and methods of mixing irons for special purposes. Five hours. Two and one-half credits. Assistant Professors F. E. Ward and F. E. Jones.

**SHOP 4.—LATHE WORK.** The use and testing of the tools which have been made in shop 1, centering work, turning on centers to fit standard gauges, turning tapers and curved surfaces, turning shafting, cutting threads, making small cap screws and set screws. Assistant Professor Ward.

**SHOP 50.—LATHE AND MACHINE TOOL WORK.** Making close fits with ordinary inside and outside calipers; cutting special screws and threads inside; machining, boring, and reaming the cast-iron parts of machinery under construction, from blue prints and sketches. Five hours a week. Two and one-half credits. Assistant Professor Ward.

**SHOP 51.—HEAVY LATHE WORK, PLANER, AND MILLING-MACHINE WORK.** Tool and jig making; grinding hardened work; making mandrels, reamers, taps, and special tools for the general shop use. Required only of mechanical engineering students. Five hours a week. Two and one-half credits. Assistant Professor Ward.

**NOTE.**—One text is used in all shop courses outlining all of the work progressively.

## TECHNICAL REPORTS AND THESES.

Reports upon subjects assigned by the special departments, required of all students, one in each semester of the Sophomore, one in the Junior, and one in the Senior year; one thesis required of each student in the second semester of the Senior year.

Students assigned for technical reports must confer with instructors in charge concerning subjects on or before October 15 for the first semester and March 15 for the second semester. The finished reports must be in instructor's hands by January 15 and May 15 for the respective semesters.

Standard forms for the make-up of reports and theses are specified in an official circular which is obtainable at the Dean's office.

Each report counts as one-half credit.

## IV. *The School of Fine Arts.*

### FACULTY.

- FRANK STRONG, A. B., 1884, A. M., 1893, PH. D., President.  
WILLIAM HERBERT CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.  
CHARLES SANFORD SKILTON, A. B., Dean, and Professor of Musical Theory and Organ.  
CARL ADOLPH PREYER, MUS. D., Professor of Piano, Counterpoint, Canon, and Fugue.  
CHARLES EDWARD HUBACH, Professor of Voice.  
WILLIAM ALEXANDER GRIFFITH, Professor of Drawing and Painting.  
ALEXANDER MARTIN WILCOX, PH. D., Professor of Greek Language and Literature.  
CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.  
EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.  
EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.  
JAMES NAISMITH, M. D., Professor of Physical Education.  
FREDERICK EDWARD KESTER, PH. D., Professor of Physics.  
RAPHAEL DORMAN O'LEARY, A. B., Associate Professor of Rhetoric.  
ELMER FRANKLIN ENGEL, A. M., Associate Professor of German.  
\*SELDEN LINCOLN WHITCOMB, A. M., Associate Professor of English Literature.  
ALBERTA LINTON CORBIN, PH. D., Associate Professor of German.  
HARRIET GREISSINGER, MUS. B., Assistant Professor of Piano.  
BLANCHE LYONS, Assistant Professor of Voice.  
MAUDE BEATRICE COOKE, Assistant Professor of Piano.  
WORT S. MORSE, Instructor in Violin.  
MAUD MILLER, MUS. B., Instructor in Piano.  
LOUISE WIEDEMANN, MUS. B., Instructor in Piano.  
GERTRUDE MOSSLER, Instructor in Expression.  
ANNA L. SWEENEY, MUS. B., Instructor in Piano.  
CONSTANCE MCCAMMON, Assistant Instructor in Expression.

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\* Absent on leave, second semester 1911-'12.



## DEPARTMENTS, DEGREES, ETC.

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The School of Fine Arts is made up of the following departments: (1) Music. (2) Drawing and Painting. (3) Expression.

### DEGREES.

The courses of study in the School of Fine Arts lead to the following degrees and certificates:

Master of music.

Bachelor of music.

Bachelor of painting.

Teacher's certificate of completion of two-year courses in music, expression, or drawing and painting.

### REQUIREMENTS FOR ADMISSION.

There are two methods of admission to the School of Fine Arts: First, by examination; second, by certificate.

#### 1. BY EXAMINATION.

All students who can not present certificates from accredited schools will be examined in the subjects required for entrance. The times and place of examination are set forth elsewhere in this Catalogue. (See page 109.)

#### 2. BY CERTIFICATE.

Students will be admitted without examination on certificates from high schools or other preparatory schools, signed by the proper school officer.

### UNITS REQUIRED FOR ADMISSION.

For admission to courses in drawing and painting, in expression, and in voice, the requirements are the same as for admission to The College, viz.: four years of high-school preparation.

For admission to the courses in violin and in piano and organ, twelve units of high-school work are required, and in addition candidates must satisfy the requirements noted under "Additional Requirements." The twelve units must include the following:

Three units in English.

Two and one-half units in mathematics.

Three units in foreign language.

One unit in physical science.

Two and one-half optional units.

## ADDITIONAL REQUIREMENTS.

**IN VIOLIN.** To the general requirements stated above applicants must add an ability to play correctly selections from the Wichtl School, book I, and from Kayser, *Thirty-six Studies*, book I.

**IN PIANO AND ORGAN.** The following course, intended to parallel the four years of high-school study, must be completed before admission to the Freshman year. Students who have nearly completed the course will be admitted with condition on recommendation of the head of the department. An examination in fourth year work is required. While the School of Fine Arts prefers this course of study, students who have been prepared with Lambert's or Mathews' *Graded Studies*, Mason's *Touch and Technic*, or other recognized methods, may offer them as a substitute.

## FIRST YEAR—

## STUDIES.

Loeschhorn, Op. 65, Book I and II.  
Burgmuller, Op. 100.  
Koehler, Op. 50.  
Duvernoy, Op. 276.

## PIECES.

Selections from "The Pianist's First and Second Years" (Schirmer), and pieces by Biedermann, Dennee, Bohm, and others.

## SECOND YEAR—

Loeschhorn, Op. 65, Book III.  
Heller, Op. 47.  
Lemoine, Op. 37.  
Concone, Op. 24.

Selections from "The Pianist's First and Second Years" (Schirmer), and pieces by Gurlitt, Lichner, Von Wilm, and others.

## THIRD YEAR—

Loeschhorn, Op. 66, Book I.  
Heller, Op. 47.  
Czerny, Op. 849.  
E. B. Perry, *Wrist Studies*.  
"Five Lyrical Pieces."

Selections from "The Pianist's Second and Third Years" (Schirmer), and pieces by Reinecke, Merkel, Schytte, and others. *Sonatinas of Clementi*, Kuhlau, Beethoven, Op. 49.

## FOURTH YEAR—

Loeschhorn, Op. 66, Book II and III.  
Heller, Op. 46.  
Czerny, Op. 299, Books I and II.  
Preyer, *Twelve Wrist Studies*.

Hadyn Sonatas in C major or E minor; Mozart Sonatas in C major or G minor; Beethoven, Op. 79; Grieg, *Lyrical Pieces*, Op. 12; Schumann, *Album for the Young*; Pieces by Meyer-Helmund, Jensen, Dupont, and others.

**IN VOICE AND VIOLIN.** Applicants for the regular course in voice and violin must be able to play piano accompaniments of moderate difficulty. Any deficiency in this respect must be made up by private lessons.

**IN LATIN.** All students expecting to take German in the regular course must offer three units of Latin.

## SPECIAL STUDENTS.

Students need not be deterred from seeking to enter the School of Fine Arts of the University because they can not satisfy all the requirements for full admission to that school. Those requirements are for persons who are candidates for a degree in music, expression, or painting. All persons who desire to pursue

a special line of work, without conforming to the requirements for entrance, or following a prescribed course, may apply for admission to the School of Fine Arts as special students. The admission of such persons is under the control of the Dean, to whom they should apply, and whose certificate of acceptance must be presented to the Registrar before registration. Special students are expected to take the equivalent of twelve hours' work, excepting those of mature years who reside in Lawrence.

Applicants for standing as special students must present satisfactory evidence of proper preparation for the studies desired. Special students are subject to the same regulations as regular students as to quality of work, attendance at recitations, and examinations, if they desire credit toward a degree.

### ENSEMBLE PLAYING.

An ensemble class meets for the study of concerted music. Four- and eight-hand piano music is studied, and trios are played with violin and violoncello. Thus pupils become acquainted with many masterpieces which are often inaccessible to music students, and acquire habits of sight-reading and accompanying, which are invaluable to the musician. Advanced students also have the opportunity of playing concertos with the University orchestra.

### THE NORMAL CLASS.

Attendance at the normal class is required of Sophomores in the piano department. The first semester the leading methods of piano instruction are examined and practically demonstrated. The second semester the voice, organ and orchestra are examined, and especial attention is given to sight singing. During both semesters there is practice in writing melodies from dictation.

### GENERAL.

It is required of all candidates for a degree that the last two years be spent in residence at the University.

During the first two years piano students will take their lessons from an assistant. In the third and fourth years all piano lessons are with Professor Preyer, but no student will be admitted who has not completed the work of the preceding year. Students in the artists' course receive two lessons a week; students in the collegiate course may choose between one private lesson or two lessons in classes of four.

Students who are behind in piano at the end of the second year will have to become special students in piano until the work is made up before they take any of the studies of the third year.

Voice students may take their lessons during the first two years either with Professor Hubach or Mrs. Lyons. In the last two years all voice lessons are with Professor Hubach.

Violin students are required to play in the University orchestra during their entire course, unless excused by the Dean on recommendation of the instructor.

The year is divided into four quarters, two quarters in each term.

The school does not furnish pianos for practice at the building, except a piano with organ pedals, but instruments can be rented in town for from three to five dollars a month, and grand pianofortes at from seven to ten dollars a month. Pianos rented of private persons, or in connection with board, may often be secured at even lower rates. Several students sometimes unite in renting an instrument, thus materially reducing the expense.

Students in drawing and painting will be required to furnish their own materials, except easels and drawing boards.

All art work, when finished, is under the control of the instructors until after the close of the public exhibition of student work, at the end of the academic year.

### EQUIPMENT.

**IN MUSIC.** The department of music of the University occupies a building of its own—North College. The down-town music studios, in the Dick building, are used by the assistant instructors and by the department of expression. The school is well equipped with pianos, including six concert grands; a three-manual pipe organ, built by King & Sons, Elmira, N. Y.; a piano with organ pedals; charts for sight-reading, and a Victor gramophone with musical records.

**IN DRAWING AND PAINTING.** The department of drawing and painting offers instruction in free-hand drawing in charcoal, pencil, and pen and ink; painting in oil and water colors from still life, the living model, the landscape; ornamental design, perspective, pictorial composition, and ceramics. In the fall of 1911 the studios of the department of drawing and painting were moved to the rooms constructed for the use of this department in the new Administration building. There are six large, top-lighted studios, together with storerooms, locker rooms and toilet rooms. The department is well equipped with objects used in teaching drawing and design, together with a large library.

**THE LIBRARY.** The University library contains a good collection of works on art, including art exposition and criticism, musical history, vocal and orchestral scores of operas, symphonies, chamber music, oratorios and cantatas, pianoforte and organ music, and collections of standard merit. This collection is annually increased.

### CONCERTS AND RECITALS.

Concerts are frequently given in Recital Hall and in University Hall by the Faculty and advanced students. Concert courses which are arranged for at the University, and the nearness of Lawrence to Kansas City and Topeka, afford students an opportunity to hear many noted musicians.

Recitals are given bimonthly by the students of the school, at which works studied in the classroom are performed before a



small audience of fellow students and their friends. Every student is required to attend these recitals and all concerts, and take part in the programs at least twice a year, and to present each term a record of attendance. These semipublic appearances are of great assistance in enabling the student to acquire the ease and self-possession so essential to a successful public performance.

Towards the end of the academic year a music festival of two days' duration is given, in which a leading orchestra and noted soloists take part with the Festival Chorus, and several masterpieces of choral and orchestral music are rendered.

#### ART EXHIBITIONS.

An annual exhibition of works of art is held at the University, together with a course of lectures upon subjects related to the fine arts. At the close of the year there is held an exhibition of work done by pupils of the department of drawing and painting.

#### EXPENSES.

By legislative enactment, a matriculation fee of five dollars (to be paid but once) must be charged each student of Kansas entering the School of Fine Arts. Nonresidents of Kansas must pay a matriculation fee of ten dollars.

The instructors in the School of Fine Arts receive compensation from the state for only part of the work of the courses, and the remainder must be paid for at rates indicated below.

All bills are payable quarterly in advance.

No fees will be refunded if the student leaves before the end of a half-term. The receipt of the treasurer of the School of Fine Arts must be presented each quarter to secure enrollment for private lessons. No lessons are given during the week of the semiannual examinations.

Seniors of the music department, except in the piano artists' course, pay \$1.00 per quarter concert fee.

Rates for regular students (two half-hour lessons a week):

First year*...	Piano, per quarter, lessons with assistants,	\$27 50
	Voice, per quarter.....	31 00
	Violin, per quarter.....	25 00
	Expression, per quarter.....	28 00
	Drawing and painting, per quarter.....	15 00
Second year..	Rates the same as for first year.	
Third year...	Piano, per quarter:	
	Artists' course .....	44 50
	Collegiate course .....	26 50
	Organ, per quarter.....	33 50
	Voice, per quarter.....	33 50
	Violin, per quarter.....	31 00
	Drawing and painting, per quarter.....	15 00

\* First year music students who enter the second semester pay \$2.50 a quarter additional as long as they attend the three-hour harmony class.

Fourth year..Collegiate course free to Kansas students.

For nonresidents, the same as for the third year.

Artists' course, \$16. For nonresidents, the same as for the third year.

### RATES FOR SPECIAL STUDENTS.

Preliminary years and private lessons with assistants:

Piano, two lessons a week, per quarter...	\$17 00 and	\$21 00
"    one lesson a week, per quarter...	9 00 and	11 00
Technic (in class) .....		5 00
Teaching materials .....		5 00
Voice, two lessons a week, per quarter.....		19 00
"    one lesson a week, per quarter.....		11 00
Expression, two lessons a week, per quarter.....		15 00
"    one lesson a week, per quarter.....		10 00

Lessons with heads of departments (half-hour lessons).

Piano, two lessons a week, per quarter.....	36 00
"    one lesson a week, per quarter.....	20 00
Voice, two lessons a week, per quarter.....	28 00
"    one lesson a week, per quarter.....	16 00
Organ, two lessons a week, per quarter.....	28 00
Organ, one lesson a week, per quarter.....	16 00
Violin or violoncello, two lessons a week, per quarter..	25 00
"    "    one lesson a week, per quarter...	13 00

Lessons with heads of departments (half-hour lessons):

Harmony, counterpoint, composition, instrumentation—	
Per quarter .....	28 00
In class .....	10 00
Public school music, two lessons a week in class, per quarter .....	5 00
Expression, two lessons a week, per quarter.....	25 00
"    one lesson a week, per quarter.....	15 00
Painting, in class, per quarter.....	15 00
Drawing, one lesson a week, eighteen weeks.....	7 50

## PROGRAM OF STUDIES.

### PIANOFORTE.

Leading to the Degree of Bachelor of Music.

#### ARTISTS' COURSE—COLLEGIATE COURSE.

These courses are identical in outline, but students in the artists' course are expected to do a larger amount of work, to maintain the highest grade in all musical subjects, and give a graduating recital. This is not required in the collegiate course, which is intended for those who wish to fit themselves for teachers or take music for personal culture rather than to become public performers. After the second year students are graded in the two courses according to their standing. Advanced students in French, German and Italian are allowed to substitute advanced courses for those offered below. See also paragraph "General" on page 243.

#### FRESHMAN YEAR.

##### *First Semester:*

Piano 1, twice a week, by appointment. Assistants.  
 Technic (Piano 9), once a week, by appointment. Miss Miller.  
 Harmony (Musical Theory 1), Tuesday and Thursday, at 2.  
 Professor Skilton.  
 Rhetoric 1, three hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Assistant Professor Gardner, and assistants.  
 Physical Education 1, once a week, by appointment. Associate Professor Johnson.  
 History of Music, Thursday, at 4. Professor Skilton.  
 Recitals and Ensemble Playing 1.

##### *Second Semester:*

Piano 2, twice a week, by appointment. Assistants.  
 Technic (Piano 10), Wednesday, at 3. Miss Miller.  
 Harmony (Musical Theory 2), Tuesday and Thursday, at 2.  
 Professor Skilton.  
 Harmony (Musical Theory 1), Monday, Wednesday, and Friday, at 2. Professor Skilton.  
 Rhetoric 2, two hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Assistant Professor Gardner, and assistants.  
 Physical Education 2, once a week, by appointment. Associate Professor Johnson.  
 History of Music, Thursday, at 4. Professor Skilton.  
 Recitals and Ensemble Playing 2.

*First Semester:*

## SOPHOMORE YEAR.

- Piano 3, twice a week, by appointment. Assistants.  
 Technic (Piano 11), once a week, by appointment. Miss Miller.  
 Harmony (Musical Theory 3), Tuesday and Friday, at 3. Professor Skilton.  
 Harmony (Musical Theory 2 and 3), Monday, Wednesday and Friday, at 2. Professor Skilton.  
 Physical Education 3, once a week, by appointment. Associate Professor Johnson.  
 English 10, two hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professor Johnson, and assistants.  
 Normal Class, Wednesday, at 4. Professor Skilton.  
 History of Music, Thursday, at 4. Professor Skilton.  
 Recitals and Ensemble Playing 3.  
 One of the following optionals may be taken (private lessons are subject to fees):  
 Vocal Culture 1, by appointment. Professor Hubach or Assistant Professor Lyons.  
 Free-hand Drawing. Professor Griffith.  
 Expression 9, once a week. Miss Mossler.  
 German 1, daily, at 8, 9, 10:15, 11:15, 1:30 and 2:30. Associate Professor Engel and assistants.  
 French 1, daily, at 8, 9, 10:15, 11:15, and 1:30. Assistant Professors Neuen Schwander, Ward, Winter, Cowper, and assistants.  
 Italian 1, three hours, at 11:15. Assistant Professor Ward.  
 Spanish 1, five hours, at 9, 11:15, or 1:30. Assistant Professor Owen, and assistants.

*Second Semester:*

- Piano 4, twice a week, by appointment. Assistants.  
 Technic (Piano 12), once a week, by appointment. Miss Miller.  
 Harmony (Musical Theory 4), Tuesday and Friday, at 3. Professor Skilton.  
 Physical Education 4, once a week, by appointment. Associate Professor Johnson.  
 English 11, three hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professor Johnson, and assistants.  
 Normal Class, Wednesday, at 4. Professor Skilton.  
 History of Music, Thursday, at 4. Professor Skilton.  
 Recitals and Ensemble Playing 4.  
 One of the following optionals may be taken (private lessons are subject to fees):  
 Vocal Culture 1, by appointment. Professor Hubach or Assistant Professor Lyons.  
 Free-hand Drawing. Professor Griffith.  
 Expression 10, once a week. Miss Mossler.  
 German 2, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30. Associate Professor Engel and Associate Professor Corbin.  
 French 2, daily, at 8, 9, 10:15, 11:15, and 1:30. Assistant Professor Neuen Schwander, and assistants.



*Second Semester:*

## SOPHOMORE YEAR.

Italian 2, three hours, at 11:15. Assistant Professor Ward.  
 Spanish 2, five hours, at 9 or 1:30. Assistant Professor  
 Winter, and assistants.  
 Teaching Materials, twice a week, by appointment. As-  
 sistant Professor Greisinger.

*First Semester:*

## JUNIOR YEAR.

Piano 5, twice a week, by appointment. Professor Preyer.  
 Composition (Musical Theory 7), Thursday, at 3. Professor  
 Skilton.  
 Counterpoint (Musical Theory 5), Monday, at 3. Professor  
 Preyer.  
 History of Music, Thursday, at 4. Professor Skilton.  
 English 12 *a* and *b*. History of English Literature. Two  
 or three hours, first semester. Three-hour divisions at 8, 9,  
 and 10:15. Two-hour divisions at 11:15, 1:30, 2:30, and  
 3:30. Assistant Professor Gray, and assistants.  
 Recitals 5.  
 One of the following optionals may be taken (private lessons  
 are subject to fees):  
 Vocal Culture, by appointment. Professor Hubach or As-  
 sistant Professor Lyons.  
 Drawing and Painting. Professor Griffith.  
 Expression 9, once a week. Miss Mossler.  
 German 1 or 3, daily. Associate Professor Engel and As-  
 sociate Professor Corbin.  
 French 1 or 3, daily. Assistant Professor Neuen Schwan-  
 der, and assistants.  
 Italian and Spanish as in Sophomore year.

*Second Semester:*

Piano 6, twice a week, by appointment. Professor Preyer.  
 History of music, Thursday, at 4. Professor Skilton.  
 Composition (Musical Theory 8), Thursday, at 3. Professor  
 Skilton.  
 Counterpoint (Musical Theory 5), Monday, at 3. Professor  
 Preyer.  
 English 13 *a* and *b*. History of English Literature. Two  
 or three hours, second semester. Three-hour divisions, at  
 11:15, 1:30, 2:30, and 3:30. Two-hour divisions at 8 and 9.  
 Assistant Professor Gray, and assistants.  
 Acoustics, three hours a week, by appointment.  
 Recitals 6.  
 Thesis 1. Professor Skilton.  
 One of the following optionals may be taken (private lessons  
 are subject to fees):  
 Vocal Culture, by appointment. Professor Hubach or As-  
 sistant Professor Lyons.  
 Drawing and Painting. Professor Griffith.  
 German 2 or 4, daily. Associate Professor Engel and As-  
 sociate Professor Corbin.

*Second Semester:*

## JUNIOR YEAR.

French 2 or 4, daily. Assistant Professors Neuen Schwander and Ward.

Italian and Spanish as in Sophomore year.

Expression 10, once a week. Miss Mossler.

Teaching Materials, twice a week, by appointment. Assistant Professor Greisinger.

*First Semester:*

## SENIOR YEAR.

Piano 7, twice a week, by appointment. Professor Preyer.

Canon and Fugue (Musical Theory 11), once a week, by appointment. Professor Preyer.

Recitals 7.

Thesis 2. Professor Skilton.

Optional, English 50, 76, and 78. Other optionals as in previous years.

Composition (Musical Theory 9), once a week, by appointment. Professor Preyer.

*Second Semester:*

Piano 8, twice a week, by appointment. Professor Preyer.

Instrumentation (Musical Theory 12), once a week, Wednesday, at 3. Professor Skilton.

Thesis 3. Professor Skilton.

Recitals 8.

Optional, English 77, 78, and 87. Other optionals as in previous years.

Composition (Musical Theory 10), once a week by appointment. Professor Preyer.

Teaching Materials, twice a week, by appointment. Assistant Professor Greisinger.

## GRADUATE COURSE.

Piano 14 and 15, a graduate course, is offered in pianoforte, leading to the degree of master of music (M. M.). The course is open only to graduates of the artists' course who have taken Senior composition work, and to graduates of other schools who have done a corresponding amount of work. In all cases an entrance examination will be insisted upon in both piano and musical composition. The examination will consist of the technic, studies, concertos, etc., and the composition work required for the completion of the Senior year, outlined above; and furthermore, grade I will be required of all applicants. A pianoforte recital is required upon completion of the course, and the performance of an original composition is one of the larger forms.

ORGAN.

Leading to the Degree of Bachelor of Music.

Three-year course, open to those who have completed the work of the Freshman year in piano.

*First Semester:* SOPHOMORE YEAR.

Organ 1, once a week, by appointment. Professor Skilton.

Piano 3, once a week, by appointment. Assistant.

Technic (Piano 11), once a week, by appointment. Assistant.

Harmony (Musical Theory 3), Tuesday and Friday, at 3. Professor Skilton.

Physical Education 3, once a week, by appointment. Associate Professor Johnson.

English 10, two hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professor Johnson, and assistants.

Normal Class, Wednesday, at 4. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing 3.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture, by appointment. Professor Hubach or Assistant Professor Lyons.

One of the following optionals may be taken (private lessons are subject to fees):

Free-hand Drawing. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30. Associate Professor Engel, and assistants.

French 1, daily, at 8, 9, 10:15, 11:15, and 1:30. Assistant Professors Neuen Schwander, Ward, Winter, Cowper, and assistants.

Italian 1, three hours, at 1:30. Assistant Professor Ward.

Spanish 1, five hours, at 9, 11:15, or 1:30. Assistant Professor Owen, and assistants.

*Second Semester:*

Organ 2, once a week, by appointment. Professor Skilton.

Piano 4, once a week, by appointment. Assistant.

Technic (Piano 12), once a week, by appointment. Assistant.

Harmony (Musical Theory 4), Tuesday and Friday, at 3. Professor Skilton.

Physical Education 4, once a week, by appointment. Associate Professor Johnson.

English 11, three hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professor Johnson, and assistants.

Normal Class, Wednesday, at 4. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing 4.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture, by appointment. Professor Hubach.

*Second Semester:*

## SOPHOMORE YEAR.

Free-hand Drawing. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30. Associate Professor Engel and Associate Professor Corbin.

French 2, daily, at 8, 9, 10:15, 11:15, and 1:30. Assistant Professor Neuen Schwander, and assistants.

Italian 2, three hours, at 1:30. Assistant Professor Ward.

Spanish 2, five hours, at 9 or 1:30. Assistant Professor Winter, and assistants.

*First Semester:*

## JUNIOR YEAR.

Organ 3, twice a week, by appointment. Professor Skilton.

Composition (Musical Theory 7), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 5), Monday, at 3. Professor Preyer.

Organ 8, once a week, by appointment. Professor Skilton.

History of Music, Thursday, at 4. Professor Skilton.

English 12 *a* and *b*. History of English Literature. Two or three hours, first semester. Three-hour divisions at 8, 9, and 10:15. Two-hour divisions at 11:15, 1:30, 2:30, and 3:30. Assistant Professor Gray, and assistants.

Recitals and Ensemble Playing 5.

One of the following optionals may be taken (private lessons are subject to fees):

Vocal Culture 1 or 2, by appointment. Professor Hubach.

German 1 or 3, daily. Associate Professor Engel, and Associate Professor Corbin.

French 1 or 3, daily. Assistant Professor Neuen Schwander, and assistants.

Italian and Spanish as in Sophomore year.

Drawing and Painting 1 or 2. Professor Griffith.

Expression 9, once a week. Miss Mossler.

*Second Semester:*

Organ 4, twice a week, by appointment. Professor Skilton.

Composition (Musical Theory 8), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 6), Monday, at 3. Professor Preyer.

Organ 9, once a week, by appointment. Professor Skilton.

English 13 *a* and *b*. History of English Literature. Two or three hours, second semester; three-hour divisions, at 11:15, 1:30, 2:30, and 3:30; two-hour divisions, at 8 and 9. Assistant Professor Gray, and assistants.

Acoustics, three hours a week, by appointment.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Ensemble Playing 6.

Thesis 1. Professor Skilton.

One of the following optionals may be taken (private lessons are subject to fees):



*Second Semester:* JUNIOR YEAR.

Vocal Culture 1 or 2, by appointment. Professor Hubach or Assistant Professor Lyons.

Drawing and Painting. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2 or 4, daily. Associate Professor Engel and Associate Professor Corbin.

French 2 or 4, daily. Assistant Professor Neuen Schwander.

Italian and Spanish as in Sophomore year.

*First Semester:* SENIOR YEAR.

Organ 5, twice a week, by appointment. Professor Skilton.

Canon and Fugue (Musical Theory 11), Wednesday, at 11.

Professor Preyer.

Church Music, once a week. Professor Skilton.

Recitals 7.

Thesis 2. Professor Skilton.

Optional. English 50, 76, and 78. Other optionals as in previous years.

Composition (Musical Theory 9), once a week, by appointment. Professor Preyer.

*Second Semester:*

Organ 6, twice a week, by appointment. Professor Skilton.

Instrumentation (Musical Theory 12), Wednesday, at 3. Professor Skilton.

Recitals 8.

Thesis 3. Professor Skilton.

Optional. English 77, 78, and 87. Other optionals as in previous years.

Composition (Musical Theory 10), once a week, by appointment. Professor Preyer.

## VIOLIN.

Leading to the Degree of Bachelor of Music.

These courses are the same as the four-year course in piano, except that violin 1 to 8 takes the place of piano 1 to 8, and orchestra 1 to 8 that of piano 9 to 12. Students must be able to play easy piano accompaniments or make up the deficiency by private lessons.

## VOCAL CULTURE.

Leading to the Degree of Bachelor of Music.

*First Semester:* FRESHMAN YEAR.

Vocal Culture 1, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 1), Tuesday and Thursday, at 2. Professor Skilton.

Rhetoric 1, three hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Assistant Professor Gardner, and assistants.

*First Semester:*

## FRESHMAN YEAR.

Italian 1, three hours a week, at 11:15. Assistant Professor Ward.

Physical Education 1, once a week. Associate Professor Johnson.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing 1.

*Second Semester:*

Vocal Culture 2, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 2), Tuesday and Thursday, at 2. Professor Skilton.

Rhetoric 2, two hours a week, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Assistant Professor Gardner, and assistants.

Physical Education 2, once a week. Associate Professor Johnson.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing 2.

Optional. Italian 2, three hours a week, at 11:15. Assistant Professor Ward.

*First Semester:*

## SOPHOMORE YEAR.

Vocal Culture 3, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 3), Tuesday and Friday, at 3. Professor Skilton.

English 10, two hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professor Johnson, and assistants.

Physical Education 3, once a week. Associate Professor Johnson.

Sight-singing 1, Wednesday, at 4. Assistant Professor Lyons.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing 3.

One of the following optionals may be taken (private lessons are subject to fees):

Piano 1, twice a week. Professor Preyer or assistant.

Free-hand Drawing. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30. Associate Professor Engel, and assistants.

French 1, daily, at 8, 9, 10:15, 11:15, and 1:30. Assistant Professors Neuen Schwander, Ward, Winter, Cowper, and assistants.

Italian 1, three hours, at 11:15. Assistant Professor Ward.

Spanish 1, five hours, at 9, 11:15, or 1:30. Assistant Professor Owen, and assistants.

## SOPHOMORE YEAR.

*Second Semester:*

Vocal Culture 4, twice a week, by appointment. Professor Hubach or Assistant Professor Lyons.

Harmony (Musical Theory 4), Tuesday and Friday, at 3. Professor Skilton.

English 11, three hours a week, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Assistant Professor Johnson, and assistants.

Physical Education 4, once a week. Associate Professor Johnson.

Sight-singing 2, Wednesday, at 4. Assistant Professor Lyons.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing 4.

One of the following optionals may be taken (private lessons are subject to fees):

Piano 1, twice a week, by appointment. Professor Preyer or assistant.

Free-hand Drawing. Professor Griffith.

Expression 10, once a week. Miss Mossler.

German 2, daily, at 8, 9, 11:15, and 2:30. Associate Professor Engel and Associate Professor Corbin.

French 2, daily, at 8, 9, 10:15, 11:15, and 1:30. Assistant Professor Neuen Schwander, and assistants.

Italian 2, three hours, at 11:15. Assistant Professor Ward.

Spanish 2, five hours, at 9 or 1:30. Assistant Professor Winter, and assistants.

## JUNIOR YEAR.

*First Semester:*

Vocal Culture 5, twice a week, by appointment. Professor Hubach.

Composition (Musical Theory 7), Thursday, at 3. Professor Skilton.

Counterpoint (Musical Theory 5), Monday, at 3. Professor Preyer.

History of Music, Thursday, at 4. Professor Skilton.

Recitals and Chorus Singing 5.

English 12 *a* and *b*. History of English Literature. Two or three hours, first semester. Three-hour divisions at 8, 9, and 10:15. Two-hour divisions at 11:15, 1:30, 2:30 and 3:30. Assistant Professor Gray, and assistants.

One of the following optionals may be taken (private lessons are subject to fees):

Piano 1 or 2, twice a week, by appointment. Professor Preyer or assistant.

Drawing and Painting. Professor Griffith.

Expression 9, once a week. Miss Mossler.

German 1 or 3, daily. Associate Professor Engel and Associate Professor Corbin.

French 1 or 3, daily. Assistant Professor Neuen Schwander, and assistants.

Italian and Spanish as in Sophomore year.

*Second Semester:*

## JUNIOR YEAR.

- Vocal Culture 6, twice a week, by appointment. Professor Hubach.
- Composition (Musical Theory 8), Thursday, at 3. Professor Skilton.
- Counterpoint (Musical Theory 6), Monday, at 3. Professor Preyer.
- Acoustics, three hours a week, by appointment.
- Recitals and Chorus Singing 6.
- History of Music, Thursday, at 4. Professor Skilton.
- English 13 *a* and *b*. History of English Literature. Two or three hours, second semester. Three-hour divisions at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions at 8 and 9. Assistant Professor Gray, and assistants.
- Thesis 1. Professor Skilton.
- One of the following optionals may be taken (private lessons are subject to fees):
- Piano 1 or 2, twice a week, by appointment. Professor Preyer or assistants.
- Drawing and Painting. Professor Griffith.
- Expression 10, once a week. Miss Mossler.
- German 2 or 4, daily. Associate Professor Engel and Associate Professor Corbin.
- French 2 or 4, daily. Assistant Professors Neuen Schwander and Ward.
- Italian and Spanish as in Sophomore year.

*First Semester:*

## SENIOR YEAR.

- Vocal Culture 7, twice a week, by appointment. Professor Hubach.
- Canon and Fugue (Musical Theory 11), Wednesday, at 11. Professor Preyer.
- Recitals and Chorus Singing 7.
- Thesis 2. Professor Skilton.
- Optional, English 50, 76, and 78. Other optionals as in previous years.
- Composition (Musical Theory 9), once a week, by appointment. Professor Preyer.

*Second Semester:*

- Vocal Culture 8, twice a week, by appointment. Professor Hubach.
- Recitals and Chorus Singing 8.
- Instrumentation (Musical Theory 12), Wednesday, at 3. Professor Skilton.
- Opera, once a week. Professor Hubach.
- Thesis 3. Professor Skilton.
- Optional, English 77, 78, and 87. Other optionals as in previous years.
- Composition (Musical Theory 9), by appointment. Professor Preyer.



## DRAWING AND PAINTING.

Leading to the Degree of Bachelor of Painting.

## FRESHMAN YEAR.

*First Semester:*

- Drawing 1, Monday, Wednesday, and Friday, 1:30 to 4:30.  
Professor Griffith and Miss Benson.
- English 10, three hours a week, at 8, 9, 10:15. Assistant Professor Johnson, and assistants.
- Rhetoric 1, two hours a week, at 8, 9, 10:15. Assistant Professor Gardner, and assistants.
- Drawing 9 (Perspective), Tuesday and Thursday, at 11:15. Professor Griffith.
- Drawing 10 (History of Modern Painting). Professor Griffith.
- Physical Education 1, once a week. Associate Professor Johnson.

*Second Semester:*

- Drawing 1, Monday, Wednesday, and Friday, 1:30 to 4:30.  
Professor Griffith and Miss Benson.
- English 11, two hours a week, at 8, 9, 10:15. Assistant Professor Johnson, and assistants.
- Rhetoric 2, three hours a week, at 8, 9, 10:15. Assistant Professor Gardner, and assistants.
- Drawing 8 (Composition), Tuesday, at 11:15. Professor Griffith.
- Drawing 5 (Painting), daily, 1:30 to 4:30. Professor Griffith.
- Physical Education 2, once a week. Associate Professor Johnson.

## SOPHOMORE YEAR.

*First Semester:*

- Drawing 2, Monday, Wednesday, and Friday, 1:30 to 4:30.  
Professor Griffith.
- Drawing 11 (Ornamental Design), Monday, Wednesday, and Friday, 10:15 to 12:15. Miss Benson.
- English 12 *a* and *b*. History of English Literature. Two or three hours, first semester. Two-hour division at 11:15. Assistant Professor Gray, and assistants.
- Physical Education 3, once a week. Associate Professor Johnson.
- Physical Education 50 (Mechanical Anatomy), three hours, 8 to 10. Professor Naismith.
- Optional. French 1 and 2, German 1 and 2, Italian 1 and 2, Spanish 1 and 2, Philosophy 1 and 2, Manual Arts (Drawing and Design 4), Zoölogy 1.

*Second Semester:*

- Drawing 5, Monday, Wednesday, and Friday, 1:30 to 4:30.  
Professor Griffith.
- Drawing 11, Monday, Wednesday, and Friday, 10:15. Miss Benson.
- Drawing 8, Tuesday, at 11:15. Professor Griffith.

*Second Semester:*

## SOPHOMORE YEAR.

Physical Education 4, once a week. Associate Professor Johnson.

English 13 *a* and *b*. History of English Literature. Two or three hours, second semester. Three-hour divisions at 11:15. Two-hour divisions at 8 and 9. Assistant Professor Gray, and assistants.

Optional. French 1 and 2, German 1 and 2, Italian 1 and 2, Spanish 1 and 2, Philosophy 1 and 2, Botany 1.

*First Semester:*

## JUNIOR YEAR.

Drawing 7 (Painting), daily, 1:30 to 4:30. Professor Griffith.

Drawing 12 (Ornamental Design), Monday, Wednesday, and Friday, 8 to 10:15. Miss Benson.

Greek Architecture 61, two hours, at 11:15. Professor Wilcox. English 50, Narration and Description. Three hours, first semester, at 8 and 9. Associate Professor O'Leary and Assistant Professor Lynn.

Optional. French 1 and 2 or 3 and 4, German 1 and 2 or 3 and 4, Spanish 1 and 2 or 3 and 4, Italian 1 and 2 or 3 and 4, English 71 and 72, Applied Design (Drawing and Design 7 and 8).

*Second Semester:*

Drawing 6, daily, 1:30 to 4:30. Professor Griffith.

Drawing 12, Monday, Wednesday, and Friday, 8 to 10:15. Miss Benson.

Drawing 8, Tuesday, at 11:15.

Greek Sculpture and Painting 62, three hours, at 11:15. Professor Wilcox.

English 51, Narration and Description. Two hours, second semester, at 8 and 9. Associate Professor O'Leary and Assistant Professor Lynn.

Optional. Same as first semester.

*First Semester:*

## SENIOR YEAR.

Drawing 7, daily, 1:30 to 4:30. Professor Griffith.

Drawing 13 (History of Ornament), Tuesday and Thursday, at 10:15.

Optionals. Same as Junior year.

*Second Semester:*

Drawing 6, daily, 1:30 to 4:30. Professor Griffith.

Drawing 13, Tuesday and Thursday, at 10:15.

Drawing 8, Tuesday, at 11:15.

Graduating Painting.

Optionals. Same as first semester.

## EXPRESSION.

## TWO-YEAR COLLEGIATE COURSE.

The course in expression covers two years of regular University work. Its purpose is to train students to become intelligent and effective readers, whether in the home or on the platform; to give them an understanding and appreciation of the drama, both as literature and as a theatrical representation, and to fit them to teach expression in all its phases, in schools and colleges. A certificate is given upon completion of the two years' course.

All courses in expression are with Miss Mossler and Miss Walker.

## JUNIOR YEAR.

*First Semester:*

Physical Education (Expression 1), one hour a week.

Voice Training (Expression 3).

Literary Interpretation (Expression 15).

Vocal Expression (Expression 7).

Dramatic Art (Expression 11).

Phrasing (Expression 9).

Rhetoric 1, three hours a week, at 8, 9, 10:15, 1:30, 2:30 and 3:30. Assistant Professor Gardner, and assistants.

English Literature 10, two hours a week. Assistant Professors Gray and Johnson, and instructors.

Recitals 1.

Optionals: Greek Art, Modern Art, History of Music.

*Second Semester:*

Physical Education (Expression 2).

Voice Training (Expression 4).

Literary Interpretation (Expression 16).

Vocal Expression (Expression 8).

Dramatic Art (Expression 12).

Phrasing (Expression 10).

Rhetoric 2, three hours a week, at 8, 9, 10:15, 1:30, 2:30 and 3:30. Assistant Professor Gardner, and assistants.

English Literature 11, three hours a week. Assistant Professors Gray and Johnson, and instructors.

Recitals 2.

Optionals: Greek Art, Modern Art, History of Music.

## SENIOR YEAR.

*First Semester:*

Voice Training (Expression 5).

Literary Interpretation (Expression 17).

Dramatic Art (Expression 13).

Oratory (Expression 19).

English Literature 12 *a* and *b*. History of English Literature.

Two or three hours, first semester. Three-hour divisions at 8, 9, 10:15, 11:15 and 1:30. Two-hour divisions at 8, 9, 10:15, 1:30. Assistant Professor Johnson and assistants. Associate Professors Whitcomb and O'Leary, and Assistant Professors Lynn, Gray, and Johnson.

Recitals 3.

Optionals: French 1, or German 1.

*Second Semester:*

## SENIOR YEAR.

Voice Training (Expression 6).

Literary Interpretation (Expression 18).

Dramatic Art (Expression 14).

Oratory (Expression 20).

Art of Conversation (Expression 21).

Practice Teaching (Expression 22).

English Literature 13 *a* and *b*. English Literature of the Eighteenth Century. Two or three hours a week. Associate Professor O'Leary, and Assistant Professor Lynn.

Recitals 4.

Optionals: French 2, or German 2.

**TWO-YEAR COLLEGIATE COURSES.**

These courses (identical with the work of the first and second years of the four-year collegiate courses outlined above) are intended for those students who feel that their time is limited. They are especially designed for teachers. A certificate is given upon completion of one of these courses.

**ARTISTS' COURSES.**

IN PIANO, VOICE, VIOLIN, VIOLONCELLO, ORGAN, OR MUSICAL COMPOSITION.

These courses are the same as the four-year collegiate courses in these subjects, requiring for graduation a graduating recital or a program of original musical compositions, or a combination of both.

For entrance and continuation in these courses the highest grade will be required in all examinations in piano, voice, organ, violin, violoncello, or composition.



## DESCRIPTION OF COURSES.

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The courses in English, French, Italian, German, Greek, physical education and physics are given in the College. They are open to regular Fine Arts students, on application to the Dean of the School of Fine Arts, but students must also enroll with the Dean of the College.

### DRAWING AND PAINTING.

Professor GRIFFITH.  
Miss BENSON.

All courses are required of students of drawing and painting and are open to other students of the School of Fine Arts who are prepared for them.

1.—FREE-HAND DRAWING. Free-hand drawing in charcoal, from the cast. The method of instruction aims to teach the student to construct form in a simple and correct manner. Freshman, throughout the year, Monday, Wednesday, and Friday, 1:30 to 4:30.

2.—FREE-HAND DRAWING. Free-hand drawing in charcoal, from life. Designed to give firm construction in drawing, and training in grasping the essential character of the model. Sophomore, first semester, and second semester, (a), Monday, Wednesday, and Friday, 1:30 to 4:30.

3.—FREE-HAND DRAWING. Free-hand drawing in pen and ink, from cast and still life. The technique of pen drawing for reproduction. Sophomore, first semester, daily, 1:30 to 4:30.

4.—FREE-HAND DRAWING. Free-hand drawing with water colors. Wash-drawing for reproduction by the half-tone process. Sophomore, second semester, daily, 1:30 to 4:30.

5.—PAINTING. Painting with water color, oil, or pastille, from still life. Students begin the study of color in this class. The observation and reproduction of simple masses of form and color. Freshman, second semester; Sophomore, first semester and second semester; daily, 1:30 to 4:30.

6.—PAINTING. Painting with water color, oil, or pastille, from life. Portrait painting is the object of the instruction given in this class. Junior and Senior, first and second semesters, daily, 1:30 to 4:30.

7.—PAINTING. Painting of landscape and human figures in the open air. Junior and Senior, second semester, daily, 1:30 to 5:30.

8.—COMPOSITION. Throughout the entire course every student is required to study the pictorial compositions of the masters, and each week to make one original composition upon a given subject. Tuesday, at 11:15.

9.—PERSPECTIVE. Linear perspective, shadows, and reflections. Freshman, first semester, Tuesday, at 11:15.

10.—HISTORY OF MODERN PAINTING. Freshman, first semester, Thursday, at 11:15.

11.—ORNAMENTAL DESIGN. The anatomy of pattern and the planning of ornament. Sophomore, first semester, Monday, Wednesday, and Friday, at 10:15.

12.—ORNAMENTAL DESIGN. The application of design for the production of ceramic art. Must be preceded by course 5. Monday, Wednesday, and Friday, at 8.

13.—HISTORY OF DESIGN. Two hours, first semester, Tuesday and Thursday, at 10:15.

### EXPRESSION.

Miss MOSSLER.

Miss MCCAMMON.

1 and 2.—PHYSICAL EDUCATION. Can be taken any time during course. One hour a week for two semesters.

3 to 6.—VOICE TRAINING. One hour a week throughout the course.

7 and 8.—VOCAL EXPRESSION. One hour a week, two semesters.

9 and 10.—PHRASING. One hour a week during first year.

11 to 14.—DRAMATIC ART. One hour a week for two years.

15 to 18.—LITERARY INTERPRETATION. One hour a week for two years.

19 and 20.—ORATORY. One hour a week, second semester, Junior year.

21.—ART OF CONVERSATION. One hour a week, second semester, Senior year.

22.—PRACTICE TEACHING. One hour a week, second semester, Senior year.

23.—RECITALS. Public platform work. When students are prepared for it.

### ENGLISH LANGUAGE AND LITERATURE.

Professor DUNLAP.

Associate Professor O'LEARY.

Assistant Professor LYNN.

Assistant Professor GRAY.

Assistant Professor JOHNSON.

Assistant Professor GARDNER.

1.—RHETORIC AND ENGLISH COMPOSITION. Three hours, first semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Written and oral themes and exercises, with outlines of rhetorical theory. Required of all Freshmen in the School of Fine Arts. Assistant Professor Gardner and assistants.

2.—RHETORIC AND ENGLISH COMPOSITION. Two hours, second semester, at 8, 9, 10:15, 1:30, 2:30, and 3:30. Two-hour divisions, Tuesday and Thursday, at the same hours. A continuation of course 1. Required of all Freshmen in the School of Fine Arts. Assistant Professor Gardner and assistants.

10.—ENGLISH LITERATURE. Two hours, first semester, at 8, 9, 10:15, 11:15, 1:30, 2:30, and 3:30. Two-hour divisions, Tuesday and Thursday, at 8, 9, 10:15, and 1:30. Class study of representative authors, with required library reading. Required in the first two years of the School of Fine Arts. Assistant Professor Johnson and assistants.

11.—ENGLISH LITERATURE. Three hours, second semester, at 8, 9, 10:15, 11:15, and 1:30. Two-hour divisions, Tuesday and Thursday, at 8, 9, 10:15, 1:30, 2:30, and 3:30. A continuation of course 10. Required in the first two years of the School of Fine Arts. Assistant Professor Johnson, and assistants.

12 *a* and *b*.—HISTORY OF ENGLISH LITERATURE. Two or three hours, first semester. Three-hour divisions, at 8, 9, and 10:15. Two-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Required for admission to courses 76, 77, 78, and 87. Required of all students in the School of Fine Arts. Assistant Professor Gray and assistants.

13 *a* and *b*.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two or three hours, second semester. Three-hour divisions, at 11:15, 1:30, 2:30, and 3:30. Two-hour divisions, at 8 and 9. A continuation of course 12. Required for admission to courses 76, 77, 78, and 87. Assistant Professor Gray and assistants.

50.—NARRATION AND DESCRIPTION. Three hours, first semester, at 8 and 9. A study of general principles, with exercises. Associate Professor O'Leary and Assistant Professor Lynn.

51.—NARRATION AND DESCRIPTION. Two hours, second semester, at 8 and 9. A continuation of course 50. Associate Professor O'Leary and Assistant Professor Lynn.

76.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, first semester, at 11:15. Prose, exclusive of the novel. Biographical and critical lectures. The essay. Criticism. History. The authors studied are Lamb, Hazlitt, De Quincey, Landor, Newman, Arnold, Carlyle, Macaulay, Ruskin, Pater, and Stevenson. Two hours of library work daily and preparation of two theses. Professor Dunlap.

77.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours, second semester, at 9. Poetry. Biographical and critical lectures. The authors studied are Wordsworth, Coleridge, Southey, Byron, Arnold, Tennyson, and Browning. Two hours of library work daily and preparation of two theses. Professor Dunlap.

78.—SHAKSPERE. Three hours, both semesters, at 10:15. Lectures upon the life and times of Shakspeare. Study and interpretation of three plays, with special attention to literary

form, plot construction, character study, and Elizabethan grammar. Two hours of library work required daily and preparation of two theses. Professor Dunlap.

87.—THE ENGLISH NOVEL. Three hours, second semester, at 11:15. An historical and critical survey of the English novel, from Defoe to Meredith. Lectures on the growth and development of the novel. Study of selected typical novels, illustrative of important phases of fiction. Two hours of library work daily and preparation of two theses. Professor Dunlap.

### FRENCH.

Professor GALLOO.  
Assistant Professor NEUEN SCHWANDER.  
Assistant Professor WARD.  
Mr. WINTER.  
Miss GARDNER.

1.—ELEMENTARY FRENCH I. Five hours, first semester, daily, at 8, 9, 10:15, and 1:30. Also given in the second semester, five hours, daily, at 8. Drill in pronunciation, accidence and elementary syntax. Prerequisites, three years of Latin or three years of German. Assistant Professor Neuen Schwander or Assistant Professor Ward, Assistant Professor Winter and Assistant Professor Cowper.

2.—ELEMENTARY FRENCH II. Five hours, second semester, daily, at 8, 9, 10:15, and 1:30. Also given in the first semester, five hours, daily, at 8. A continuation of course 1. Reading of simple prose texts, with exercise in dictation and elementary composition. Assistant Professors Neuen Schwander, Ward, Cowper, or Miss Stanton.

3.—MODERN FRENCH PROSE. Three hours, both semesters—first semester, at 9; second semester, at 8. Translation and reading of some works of Mérimée, George Sand, Anatole France and René Bazin. Assistant Professors Neuen Schwander and Ward, or Miss Stanton.

4.—COMPOSITION. Two hours, both semesters—first semester, at 9; second semester, at 8. Written exercises, intended chiefly as a grammatical review. Oral exercises. Dictation. Assistant Professors Winter and Cowper.

### ITALIAN.

Professor GALLOO.  
Assistant Professor WARD.

1.—ELEMENTARY ITALIAN I. Three hours, first semester, at 11:15. Grammar. Reading, De Amicis's Cuore. Assistant Professor Ward, and Miss Stanton.

2.—ELEMENTARY ITALIAN II. Continuation of course 1. Three hours, second semester, at 1:30. Grammar, composition, and reading of modern authors. Assistant Professor Ward, and Miss Stanton.



## GERMAN.

Professor CARRUTH.  
 Assistant Professor ENGEL.  
 Assistant Professor CORBIN.

NOTE.—For admission to German 1 and 2, the full amount of three units of Latin is required.

1.—GERMAN GRAMMAR. Carruth's Otis's Grammar, with composition exercises. Carruth's Reader, about fifty pages. Five hours, first semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30; second semester, at 1:30. Associate Professor Engel, Associate Professor Corbin, and assistants.

2.—GERMAN READER, completed, and SCHILLER'S WILHELM TELL (complete). Also special exercises in word order and auxiliary verbs and sight-reading. Second semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 3:30; first semester, at 9, 1:30, and 2:30. Associate Professor Engel, Associate Professor Corbin, and assistants.

3.—GERMAN PROSE. Lessing's Minna v. Barnhelm, etc. Preceded by review of grammar. Sight-reading. Five hours, first semester, daily, at 8, 9, 10:15, 11:15, 2:30, and 3:30; second semester, at 9, 2:30, and 3:30. Associate Professor Engel, Associate Professor Corbin, and assistants.

4.—SCHILLER'S WALLENSTEIN. Five hours, second semester, daily, at 8, 9, 10:15, 11:15, 2:30, and 3:30; first semester, at 10:15 and 3:30. Associate Professor Engel. Associate Professor Corbin, and assistants.

## GREEK.

Professor WILCOX.

61 and 62.—HISTORY OF GREEK ART. Lectures, recitations, private reading, writing of themes. First semester, two hours; second semester, three hours, at 11:15. Professor Wilcox.

## MUSICAL THEORY.

Professor SKILTON.  
 Professor PREYER.

The following courses are required of all students in the regular music courses, excepting 9 and 10, which are optional:

1.—HARMONY. The study of overtones, scales, intervals, triads and seventh chords and their inversions. The practical work consists of harmonizing melodies in soprano or bass and playing chord progressions at the piano. Freshman, first semester, Tuesday and Thursday, at 2. Chadwick's Harmony used. Professor Skilton.

2.—HARMONY. The study of close and open harmony, dominant ninth and diminished seventh chords, modulations. Practical work continued. Freshman, second semester, Tuesday and Thursday, at 2. Professor Skilton.

3.—HARMONY. The study of modulation, irregular resolutions, altered chords, suspensions, passing tones, organ point,

harmonization of florid melodies. Practical work continued. Sophomore, first semester, Tuesday and Friday, at 3. Professor Skilton.

4.—HARMONY. Suspensions, passing tones, appoggiaturas, neighboring tones, organ point, harmonization of florid melodies, analysis. Practical work continued. Sophomore, second semester, Tuesday and Friday, at 3. Professor Skilton.

5.—COUNTERPOINT. The different orders of single counterpoint in two, three and four parts. Junior, first semester, Monday, at 3. Professor Preyer.

6.—COUNTERPOINT. Double and triple counterpoint; counterpoint in the twelfth and fifteenth and in more than four parts. Modern counterpoint. Junior, second semester, Monday, at 3. Professor Preyer.

7.—MUSICAL COMPOSITION. The theme and variations, dance and song forms. Analysis of classical models and practical work. Junior, first semester, Thursday, at 3. Professor Skilton.

8.—MUSICAL COMPOSITION. The sonata and rondo forms; analysis of classical sonatas; original work. Junior, second semester, Thursday, at 3. Professor Skilton.

9.—MUSICAL COMPOSITION. Original work in modern forms. Open only to those who show talent for composition. Senior, first semester, Wednesday, at 9. Professor Preyer.

10.—MUSICAL COMPOSITION. Continuation of course 9. These two courses are open only to those who show talent for composition. Senior, second semester, Wednesday, at 3. Professor Preyer.

11.—CANON AND FUGUE. The various forms of canon and their use in composition. The fugue in two, three and four parts. Analysis of Bach fugues and original work. Senior, first semester, Wednesday, at 3. Professor Preyer.

12.—INSTRUMENTATION. The nature and treatment of the different instruments of the orchestra. The overture, symphony, cantata. Practical work for the University Orchestra. Senior, second semester, Wednesday, at 3. Professor Skilton.

### ORGAN.

Professor SKILTON.

1.—MANUAL AND PEDAL STUDIES. Merkel or Archer. Pedal scales and arpeggios; the principles of hymn playing. Sophomore, first semester, one hour a week, by appointment.

2.—MANUAL AND PEDAL STUDIES. Buck's Studies in Pedal Phrasing; Schmidt's Organ Etudes; Bach's Little Preludes and Fugues; Flagler's The Organist Treasury, and other selections. Sophomore, second semester, one hour, by appointment.

3.—SERVICE AND SOLO PLAYING. Buck's Choir Accompaniment. Various styles of hymn playing; accompaniment of solo and chorus. Schneider's Pedal Studies, easier preludes and

fugues of Bach and Mendelssohn. Modern pieces by Batiste, Lemmens, Guilmant, and others. Junior, first semester, two hours, by appointment.

4.—SERVICE AND SOLO PLAYING. Arrangement of piano accompaniments, for organ. Practice in accompanying singers. The easier sonatas of Mendelssohn, Merkel, Guilmant, and others. Junior, second semester, two hours, by appointment.

5.—CHURCH AND CONCERT PLAYING. Practical work in playing the church service. The more difficult fugues and sonatas. Concert pieces by Widor, Guilmant, Saint-Saëns, Thiele, and others. Senior, first semester, two hours a week, by appointment.

6.—CHURCH AND CONCERT PLAYING. Extemporization and transposition. Program making. Preparation of a recital. Senior, second semester, two hours a week, by appointment.

7.—CHURCH MUSIC. The history of church music, examination of different schools and styles. Senior, first semester, one hour a week.

8 and 9.—ORGAN CONSTRUCTION. Examination of tracker, tubular pneumatic, and electric action in available organs. Practice in tuning. One hour a week, Junior year, by appointment.

### PIANOFORTE.

Professor PREYER.  
Assistant Professor GREISINGER.  
Assistant Professor COOKE.  
Miss MILLER.  
Miss WIEDEMANN.  
Miss SWEENEY.

Courses 1 to 12, inclusive, are open only to students of the School of Fine Arts. Course 13 is open only to graduates in piano.

1 and 2.—PIANO. Hanon: Virtuoso Pianist. A limited number of studies from the following: Whiting Melodious Technical Exercises; Hoffman, etudes for the left hand; Cramer-Buelow, sixty selected etudes; Preyer, twenty etudes, op. 35 (Schirmer); Bach, two- and three-part inventions (Litolf, op. 42), etc. Sonatas by Haydn, Mozart, Beethoven. Selections from classic and modern compositions. Freshman, throughout the year, twice a week, by appointment. Assistants.

3 and 4.—PIANO. Czerny: Daily Exercises. Etudes, selected according to the needs of the pupil, from Jensen, op. 32; MacDowell, op. 39; Haberbier, Etudes Poesies, op. 53; Preyer, op. 30 and 45; Hollaender, intermezzi for left hand; Bach, English Suites. Concertos by Mozart, Hummel, etc. Selections from classic and modern compositions. Sophomore, throughout the year, twice a week, by appointment. Assistants.

5 and 6.—Phillipp: Daily Exercises. Clementi's Gradus ad Parnassum; Etudes from Moscheles, op. 70; Seeling, Concert

Etudes, op. 10; Chopin, Preludes; Bach, Well-tempered Clavichord (Reinecke, B. and H.); concertos by Beethoven, Mendelssohn, etc.; concert pieces by classic and modern composers. Junior, throughout the year, private lessons, twice a week, by appointment. Professor Preyer.

7 and 8.—Joseffy: School of Advanced Piano Playing. Phillipp, etudes for the left hand; etudes from Chopin, op. 10 and op. 25; Rubinstein, op. 23, etc. Sonatas and concertos by Beethoven, Weber, Grieg, etc. Concert pieces by modern composers. Senior, throughout the year, private lessons, twice a week, by appointment. Professor Preyer.

9 to 12.—A course for the study of pianoforte methods, aiming to develop independence of the fingers, and acquiring correct habits of practicing the scales, arpeggios, trills, octaves, chords, etc. Freshman and Sophomore, throughout the year. Wednesday, 3:30 to 4:30. Miss Miller.

13.—TEACHING MATERIALS. A study of teaching materials for piano. Each pupil is required to keep a notebook, teach one practice student and attend a one-hour class each week. Open to all classes but Freshman and to advanced special students. Ten weeks during second semester. Assistant Professor Greisinger.

#### GRADUATE COURSE.

14 and 15.—Phillipp (continued). Modern etudes, by Liszt, MacDowell, etc.; selections from Lebert & Stark, Pianoforte School, book IV. Transcriptions of Bach's organ fugues, by Liszt, Tausig, D'Albert, etc. Modern concert pieces and concertos. Twice a week throughout the year. Professor Preyer.

#### PHYSICAL EDUCATION.

Professor NAISMITH.

Assistant Professor FISH.

1.—MARCHING. Elementary work in free-hand, dumb-bells, wands, and clubs; hygienic work on the apparatus; gymnastic games for recreation. First semester. Assistant Professor Fish.

2.—ADVANCED WORK IN FREE-HAND. Calisthenics, and hygienic work on the apparatus; athletics of an all-round nature; games for skill and physical judgment. Second semester. Assistant Professor Fish.

3.—EDUCATIONAL WORK WITH LIGHT AND HEAVY APPARATUS. Fancy marching; games requiring skill and self-control; squad leading in calisthenics and apparatus work. First semester. Assistant Professor Fish.

4.—SPECIALIZING IN SOME LINE OF EXERCISE. Fencing and broadsword; conducting games, competitions, and exhibitions. Second semester. Assistant Professor Fish.



50.—MECHANICAL ANATOMY. Three hours, first semester, 8 to 10. The study of the bones, articulations and muscles in their relations as mechanical principles. Professor Naismith.

## PHYSICS.

Professor KESTER.

Assistant Professor STIMPSON.

2.—ELEMENTARY ACOUSTICS. A course of about twenty lectures, with demonstrations, upon the scientific basis of harmony. Required of students of the School of Fine Arts. Second term, by appointment. Given in alternate years. Assistant Professor Stimpson.

## SPANISH.

Professor GALLOO.

Mr. WINTER.

Miss GARDNER.

Miss ENKE.

1.—ELEMENTARY SPANISH I. Five hours, first semester, at 9, 11:15, or 1:30. An outline of grammar (Hills and Ford). Reading of short stories. Elementary composition. Prerequisites, three years of Latin or three years of German. In addition, one year of French is recommended. Assistant Professor Winter or Miss Enke.

2.—ELEMENTARY SPANISH II. Five hours, second semester, at 9 or 1:30. Grammar and composition. Reading of easy modern prose; Carrión-Aza Pérez Galdós Palacio Valdés Alarcón, etc. Assistant Professor Winter or Miss Enke.

## VIOLIN.

Professor MORSE.

Courses 1 to 4, inclusive, are required of all violin students.

1.—SCHRADIECK'S FINGER TECHNIC; Hermann's Violin School, book I; Hermann's School of Scales, book I; Kayser's Thirty-six Etudes, books II and III; violin duets by Dancla, Mazas, Viotti; selections from the simpler compositions of Hermann, Singelee, Alard, De Beriot, Dancla, Papini, Leonard, and Daube. By appointment.

2.—HERMANN'S VIOLIN SCHOOL, book II; Scales and Technic, by Bendix and Schradieck; Hermann's School of Scales, book II; Kreutzer's Forty Studies; sonatas selected from Mozart and Handel; violin duets by Mazas; concertos from the early Italian masters; selections from the compositions of David, De Beriot, Viotti, Rode, Kreutzer, Sauret, Papini, Handel, and Bazzini. Ensemble playing. By appointment.

3.—SCALES AND TECHNIC BY BENDIX (continued); Hermann's School of Scales, book III; Fiorillo's Thirty-six Etudes; concertos by De Beriot, Spohr, and Mozart. Selections from the Compositions of Souret, David, Wieniawski, Hauser, Vieuxtemps,

Bazzini, and Bohm; sonatas for violin and piano, selected from Beethoven, Grieg, and Tartini. Ensemble playing. By appointment.

4.—SCALES AND TECHNIC BY SCHRADIECK; Hermann's School of Scales, book III; Rode's Thirty-six Caprices; Dancsa's Twenty Etudes; concertos by Spohr, Mendelssohn, Beethoven, and Bruch; sonatas selected from J. S. Bach; compositions by Sarasate, Hubay, Raff, Vieuxtemps, Wienawski, Sauret, Ernst, Brahms, and Ries; violin duets by Spohr. By appointment.

### VOCAL CULTURE.

Professor HUBACH.  
Assistant Professor LYONS.

Courses 1 to 5, inclusive, are required of all students taking the four years' work in vocal culture; courses 1, 2, 3 and 5 are open to all other musical students. Course 5 is required of all Sophomores. Course 8 is required of all students wishing to graduate as teachers.

1 and 2.—TONE-PLACING. Dictation exercises for the special needs of the individual voice. Sustained tones. Breath control and the true legato. The study of conditions necessary for the poising of the voice. The Italian vowels. Technical exercises selected from Marchesi, Lamperti, Sieber, Abt, Panofka, Garcia, and Shakspeare. Simple English and Italian songs. Freshman, twice a week throughout the year, by appointment.

3 and 4.—VOICE EXTENSION. Development of tone. Breath control. Exercises for flexibility from Lamperti, Nava, Concone, Vannini, Bordogni, Sieber, and Shakspeare. English and Italian ballads. German lieder. Church solos. Sophomore, twice a week throughout the year, by appointment.

5 and 6.—STUDY OF TONE COLOR. Exercises for flexibility, continued. Embellishments. Exercises from Concone, Panofka, Marchesi, Garcia, Panseron, and Rossini. German lieder, English oratorio, and church solos. Junior, twice a week throughout the year, by appointment. Professor Hubach.

7 and 8.—METHODS OF TONE-PLACING AND BREATHING. A comparative study. Exercises for bravura singing from Marchesi. Flexibility and finishing exercises from the masterpieces of vocalization. Stage deportment. Selections from Italian opera and English oratorio. Senior, twice a week throughout the year, by appointment. Professor Hubach.

9.—SIGHT-SINGING. Sound relationship. Time relationship. Rhythm. Dictation exercises. Unison, two parts, three parts, and four parts. Assistant Professor Lyons.

10.—OPERA. Solo and chorus drill in the standard operas. Those taking this course are united with other singers from the University and city to form the school of grand opera. One presentation of opera will be given each year.

11.—ORATORIO. Solo and chorus drill in the standard works. Singers from the University and city are united to form the Fes-

tival Chorus. Presentation of oratorios will be given each year. This society annually engages a standard orchestra and eminent soloists for the spring festival.

12.—TEACHERS' COURSE. For students desiring to prepare themselves especially for teaching. Text: Manual Garcia. Professor Hubach.

13.—PUBLIC SCHOOL MUSIC. Two hours, both semesters. The course consists of a careful review of methods of teaching, conducting and organizing chorus, and lectures on the care of children's voices. Open to all music students. Professor Hubach.

## V. *The School of Law.*

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### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM H. CARRUTH, PH. D., Vice President.

JAMES W. GREEN, A. M., Dean, and Professor of Law.

WILLIAM L. BURDICK, PH. D., LL. B., Professor of Law.

WILLIAM E. HIGGINS, B. S., LL. B., Professor of Law.

HENRY C. HILL, A. B., LL. B., Professor of Law.

HENRY W. HUMBLE, A. M., LL. B., Associate Professor of Law.

#### *Lecturers for 1912-'13.*

J. G. SLONECKER, United States Referee in Bankruptcy, Topeka.

THOMAS A. NOFTZGER, Attorney at Law, Anthony.

HENRY F. MASON, Justice of the Supreme Court of Kansas.

ALFRED W. BENSON, Justice of the Supreme Court of Kansas.

J. C. RUPPENTHAL, Judge of the District Court, Russell.

W. C. MICHAELS, Attorney at Law, Kansas City, Mo.

D. A. VALENTINE, Clerk of the Supreme Court of Kansas.

R. A. DAILY, Chicago, Ill.

THOS. E. WAGSTAFF, Attorney at Law, Independence, Kansas.

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### PURPOSE OF THE SCHOOL.

It is the aim of the School of Law to give all its students a thorough acquaintance with the general principles of American law and to furnish a course of legal instruction that shall fit them to practice at the bar of any state of the Union, and to give those who do not expect to become practicing attorneys, but who desire to pursue certain legal subjects for their bearing upon business, such instruction as may be best suited to their needs.

### DEGREE GRANTED.

The course of study of the School of Law leads to the degree of bachelor of laws (LL. B.).

### SYSTEM OF INSTRUCTION.

It is believed to be proved by experience that, to be thoroughly efficient, instructional training in law courses must be given by resident teachers who give their whole time to instruction. The



work of the School of Law is under the direction of five resident instructors, supplemented by lectures on special topics by competent men in the actual practice of law.

### METHOD OF TEACHING.

There are in general three methods of class instruction in law—by lectures, by textbooks, and by cases. The School of Law at the University does not pursue any method to the entire exclusion of the others. It uses the textbook method very largely for the beginning classes, and makes use of the lecture and case methods more largely as classes advance in the course. Experience seems to have shown, however, that the students get a clearer and more lasting knowledge of the fundamental principles of law through the study of a textbook and recitations in the classroom, together with a parallel study of cases to illustrate the principles involved.

The student is given large opportunity for free discussion of the topics in question, and is brought as much as possible into personal touch with his instructor.

### WORK IN PREPARATION FOR LAW.

All persons proposing to enter upon the study of law are earnestly recommended to take first either a regular or special course in the College. A good fundamental education is necessary to a successful study of law. Especially is it necessary now when the practitioner must come into competition with men who have had a thorough university training before they entered upon the study of law.

The College offers special work in subjects of great value as preparatory to law: English and American constitutional and political history, constitutional law, political science, economics, sociology, history of international and of common law, in rhetoric and English composition, and in debating. These courses are especially recommended in preparation for law.

### REQUIREMENTS FOR ADMISSION.

Beginning with September, 1912, thirty hours in the College of Liberal Arts and Sciences of the University of Kansas, or their equivalent in some other university or approved college, in addition to graduation from a four-year high school, will be required for entrance to the School of Law.

These credits may be proven by proper certificate of the authorities of the university or college where the work was done, or they may be obtained by examination upon application to the University of Kansas.

### LENGTH OF LAW COURSE.

The completed course includes three years, each of which occupies thirty-six weeks (excluding two weeks' recess at Christmas). The first semester of the year 1912-'13 will begin on Wednesday, the 18th day of September, 1912.

## COLLEGE AND SCHOOL OF LAW IN SIX YEARS.

A regular course in the College is strongly recommended. During his Senior year of the College a student is permitted to elect one half-year's work from the course in the School of Law, for which he will receive credit in his College course. By this arrangement, the student, by reasonable extra work, may finish both the College and the School of Law in six years.

## COURSES OF LAW IN THE SUMMER SESSION.

Attention is called to the opportunity of shortening the law course, or of correcting irregularities therein, by taking such law subjects as are offered in the Summer Session of the University.

A course has been arranged which will enable a person who enrolls in three Summer Sessions to graduate after attending two regular sessions of the University, provided he has previously completed the preparatory work required for entrance to the Law School, as laid down in this catalogue. For each course the student is referred to the outline of course of study in the Summer and Regular Sessions.

## ADMISSION TO ADVANCED STANDING.

Persons who have previously completed a part of the course are admitted to advanced standing in the Junior and Middle classes on satisfying the Faculty as to their qualifications. No one will be so admitted to the Senior class except upon passing a satisfactory examination upon the requirements for admission, and also upon the work prescribed for the Junior and Middle classes.

Certificates of work done in other law schools of recognized standing and equivalent requirements may be received in lieu of examinations for advanced standing.

## UNCLASSED STUDENTS.

Opportunity is given in the School of Law for the admission of persons of mature years who desire to pursue special work without following any prescribed course or becoming candidates for a degree.

The admission of such unclassified students is directly under the control of the Dean of the School, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for standing as unclassified students must present satisfactory evidence of proper preparation for the studies desired, and must also meet other requirements as fixed by the Faculty.

Unclassed students are subject to the same regulations as regular students with regard to the quality of work performed and attendance at recitations and examinations.

## EXAMINATIONS.

The members of each class will be examined upon each topic when completed. A final examination will be held at the end of the third year, embracing all the studies of the course. The degree of bachelor of laws will be conferred upon members of the Senior class who complete the course of study according to the requirements.

## CERTIFICATE OF ATTENDANCE.

If the student does not graduate, he may, on application to the Registrar, receive an official certificate of his attendance and of the work accomplished by him in the school.

## ADMISSION TO THE BAR.

The legislature of 1903 amended the statute regulating admission to the bar, and provided for state examinations by a commission appointed by the supreme court. This act provides that applicants must be graduates of this School of Law or of an institution of equal standing, or they must have studied law for three years in a law office. The board of examiners meets at Topeka on the third Monday in January and June. Applications for examination and proof of qualifications must be filed with the secretary of the board at least three weeks before the examination. Printed forms of application may be obtained from the clerk of the supreme court, Topeka, Kansas.

All applicants must present high school certificates or affidavits from teachers showing the completion of the following subjects, or pass examinations therein, to wit: three years English—grammar, rhetoric and literature; arithmetic, algebra, geometry; general history, Roman, English and American history; civil government; the elements of physics; physical geography, botany, biology; political economy and sociology.

All candidates for admission are required to pass a written examination covering their legal qualifications. All subjects included in this examination are within the course of study of the University School of Law.

## PRACTICE COURTS.

There are three practice courts in the School of Law, all of them under the immediate supervision of the member of the Faculty who devotes the major part of his time to this work. The sessions are held in the courtroom, which has been fitted with all of the furniture to be found in courtrooms in actual practice. Ample accommodations are furnished for judge, jury, and practitioners.

## THE JUNIOR PRACTICE COURT.

In the Junior year preliminary instruction is first given in the analysis of opinions, and in the preparation of cases for argument. Following this preliminary instruction, court is held

under the direction of the member of the Faculty in charge. The places of attorneys, clerk, and other court officers are filled in rotation by members of the class. Cases involving statements of fact are assigned. Written briefs are required to be prepared, served upon the opposing attorneys, and submitted to a court composed of two members of the class and the member of the Faculty. Written opinions containing a full discussion of the legal questions presented are required to be handed down by the student justices.

#### THE MIDDLE PRACTICE COURT.

The aim of the course of the Middle year is to instruct in the preparation of cases before and after they are filed in court. To this end, statements of fact are given to the members of the class, in accordance with which trial briefs of the law and of the facts are made, and pleadings under the common law, equity and code systems of civil procedure are drawn. Each member of the class receives from the instructor in charge criticism of the work done. The code practice of the court follows closely the practice in the district courts of Kansas. Besides this work, a course of lectures is given on instructions to juries and findings of fact. Members of the class are required to draw journal entries, instructions and findings, under direction of the instructor in charge of the course.

#### THE SENIOR PRACTICE COURT.

The work of this year is a continuation of the work of the preceding two years. The student is taught how to begin and prosecute a case in court. The former difficulty of originating facts in practice courts has been overcome, and all the testimony of complicated cases is placed in the hands of witnesses, who are interviewed by the attorneys assigned. The cases are then begun, prosecuted and determined as in actual practice. Juries are drawn and impaneled, the evidence produced, instructions given, verdicts and judgments rendered as in the justice of the peace courts and in the district courts of Kansas. Following this, appeals are prosecuted in due course to the supreme court, where briefs are filed and arguments made as in the supreme court of Kansas.

Only four attorneys are assigned to each case, and there are enough cases for all members of the class to act as trial attorneys and as attorneys in the appellate court. Every member of the Senior class is thus given an opportunity to conduct a case as in actual practice.

Instruction is also given in legal ethics and in office practice.

For members of the courts, a series of lectures on practical topics is arranged for the second term of each year.

#### FEES AND EXPENSES.

For fees and expenses, see page 55.



## STUDENT ORGANIZATIONS.

**COOLEY CLUB.** Meetings of the club occur once each week. Any student of the School of Law is eligible, but the membership is confined at present mainly to the members of the Junior and Middle classes. Legal questions are debated, and to this is added the work of the ordinary literary debating society.

**KENT CLUB.** The members of the Kent club are, in the main, members of the Senior class, although any student in the School of Law is eligible to membership. The work consists of the discussion of legal, economic and historical questions, and the consideration of legal literature. Debating is a prominent feature of the work of the club.

## THE KANSAS UNIVERSITY LAW JOURNAL.

*The Kansas University Law Journal* is a monthly publication edited and managed by the students of the School of Law. In each issue appear the syllabi to the decisions of the supreme court of Kansas during the preceding month. So far as practicable, contributions to its columns are accepted from the law students and from members of the bar residing within the state, thus making the magazine a representative legal publication of the Kansas bar.

## HONORS AND PRIZES.

By resolution, the State Bar Association of Kansas, as a recognition of the School of Law and for the purpose of encouraging its students to work along the line of legal literature, assigns a place on the literary program of the annual meeting at Topeka to that student of the Senior class who prepares the best paper on some legal topic assigned by the Law Faculty. The merits of the papers submitted are passed upon by a committee appointed for the purpose. Adelbert O. Andrew was the winner of this honor in 1911, and Arthur H. Fast in 1912.

The Edward Thompson Company offers annually a prize of a set of the American and English Encyclopedia of Law for the best thesis on a subject assigned by the Law Faculty. The contest is open to all members of the School of Law. C. E. Deming was the winner of this prize in 1911.

## DEBATING.

Interstate debates are held each year with Oklahoma, Missouri and Colorado state universities. Members of the Law School are admitted to the preliminary contest held for the purpose of choosing representatives on each of these debates. Those chosen receive practical instruction in public speaking and debating from a committee of the general Faculty of the University. Law students are also eligible to membership in the general literary clubs of the University.

## EQUIPMENT.

**GREEN HALL.** A building for the School of Law of the University was completed during the summer of 1905. The building cost \$65,000, and is one of the most complete and best-equipped law buildings in the West. It has three floors, devoted to recitation rooms, offices, library, and rooms for the Law School clubs. The library contains space for about 20,000 volumes, and private study rooms for students and Faculty open into the reading room of the library. A large room is set aside for a practice court, and the best facilities possible are available for students of the law.

**LIBRARIES.** The law library is composed of 6500 volumes, for the exclusive use of the students of the School of Law. The library has an excellent equipment of the best law textbooks, and new texts are being added constantly. It has also reports of the courts of last resort, both state and federal, as well as Lawyers' Reports Annotated, American Decisions, American Reports, the complete *Reporter* system, and the full reprints of the English cases. Limited space has prevented as rapid growth of the library as desired, and in the new building large additions will be made to the library equipment. In addition to the volumes devoted exclusively to law, the University library of nearly 68,000 volumes is at the disposal of the law students. They thus have at hand the largest and best-selected scholarly library in the Southwest. The city library, housed in the Carnegie building, is also open to students of the School of Law for books of fiction and general literature.

**STATE LIBRARY.** The state library, at Topeka, which is largely a law library, is easily accessible to students upon necessary occasions. Such works as may be found usually in large state libraries will therefore be at the disposal of the members of the Law School at various times during the year.

## PROGRAM OF STUDIES.

## JUNIOR YEAR.

*First Semester (first half) :*

Contracts, Clark; Williston's cases. Daily, at 9. Professor Green.

Criminal Law, Clark and Marshall. Daily, at 10:15. Professor Burdick.

Elementary Law, Robinson. Daily, at 11:15. Associate Professor Humble.

Practice Court. Friday, at 1:30. Professor Higgins.

*First Semester (second half) :*

Contracts (continued). Daily, at 9. Professor Green.

Agency, Mechem's Outlines and Cases. Daily, at 10:15. Associate Professor Humble.

Torts, Bigelow. Tuesday and Thursday, at 11:15. Professor Hill.

Practice Court. Friday, at 1:30. Professor Higgins.

*Second Semester (first half) :*

Torts (continued). Monday, Wednesday and Friday, at 9. Professor Hill.

Sales, Burdick, and cases. Daily, at 10:15. Professor Burdick.

Bailments, Goddard's Outline and Cases. Daily, at 11:15. Associate Professor Humble.

Practice Court. Friday, at 1:30. Professor Higgins.

*Second Semester (second half) :*

Suretyship, Stearns. Daily, at 9. Associate Professor Humble.

Damages, Mechem and Gilbert's Cases. Daily, at 10:15. Associate Professor Humble.

Domestic Relations, Woodruff's Cases, and lectures. Daily, at 11:15. Professor Burdick.

Practice Court. Friday, at 1:30. Professor Higgins.

## MIDDLE YEAR.

*First Semester (first half) :*

Common Law Pleading, Shipman, and cases. Daily, at 8. Professor Higgins.

Insurance, Vance; Wambaugh's Cases. Daily, at 9. Associate Professor Humble.

Equity ———, Monday, Wednesday and Friday, at 11:15. Professor Hill.

Practice Court, Monday and Wednesday, 1:30. Professor Higgins.

*First Semester (second half) :*

Langdell's Summary of Equity Pleading and Simkin's A Federal Suit in Equity.

Equity Pleading, Langdell. Daily, at 8. Professor Higgins.

Quasi Contracts, Woodruff's Cases. Daily, at 10:15. Professor Burdick.

Equity ———, Monday, Wednesday and Friday, at 11:15. Professor Hill.

Practice Court. Monday and Wednesday, at 1:30. Professor Higgins.

*Second Semester (first half) :*

Bills and Notes, ———. Monday, Wednesday and Friday, at 8. Professor Hill.

Trusts, ———. Tuesday and Thursday, at 8. Professor Hill.

Evidence, Hughes; Wigmore's Cases. Daily, at 9. Professor Green.

Code Pleadings, Phillips, with cases. Daily, at 10:15. Professor Higgins.

*Second Semester (second half) :*

Bills and Notes (continued). Monday, Wednesday and Friday, at 8. Professor Hill.

Trusts (continued). Tuesday and Thursday, at 8. Professor Hill.

Evidence (continued). Daily, at 9. Professor Green.

Conflict of Laws, ———. Daily, at 10:15. Professor Burdick.

Practice Court. Monday and Wednesday, at 1:30. Professor Higgins.

## SENIOR YEAR.

*First Semester (first half) :*

Real Property, Tiedeman, with cases. Four times a week, at 9. Professor Burdick.

Roman Law, Lectures, Sohm's Institutes. Once a week, at 9. Professor Burdick.

Corporations, ———. Daily, at 10:15. Professor Hill.

Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

*First Semester (second half) :*

Real Property (continued). Four times a week, at 9. Professor Burdick.

Roman Law (continued). Once a week, at 9. Professor Burdick.

Corporations (continued). Daily, at 10:15. Professor Hill.

Bankruptcy, Williston's cases. Tuesday and Thursday, at 11:15. Associate Professor Humble.

Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.



*Second Semester (first half):*

Real property (continued). Four times a week, at 9. Professor Burdick.

Roman Law (continued). Once a week, at 9. Professor Burdick.

Partnership, Burdick; Ames's Cases. Daily, at 10:15. Associate Professor Humble.

Constitutional Law, Black. Daily, at 11:15. Professor Green.

Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

*Second Semester (second half):*

Wills, Costigan's cases. Daily, at 10:15. Professor Hill.

Constitutional Law (continued). Daily, at 11:15. Professor Green.

Practice Court. Tuesday and Thursday, at 1:30. Professor Higgins.

**Program of Studies for the Summer Session Course.**

SUMMER SESSION OF 1912.—Criminal Law and Torts. Agency and Bills and Notes, Insurance and Partnership.

REGULAR SESSION OF 1912-'13.—Common Law Pleading, Contracts, Elementary Law, Equity Pleading, Quasi Contracts, Bills and Notes, Evidence, Sales, Bailments, Damages, Domestic Relations, and Practice Courts.

SUMMER SESSION OF 1913.—Agency and Insurance, Partnership and Wills, Criminal Law and Torts.

REGULAR SESSION OF 1913-'14.—Real Property and Roman Law, Corporations, Equity, Bankruptcy, Trusts, Code Pleading, Constitutional Law, Suretyship, Conflict of Laws, and Practice Courts.

SUMMER SESSION OF 1914.—Partnership and Wills, Agency and Insurance. Criminal Law and Torts.

The student who entered after the Summer Session of 1910 must complete the course in not less than three Summer Sessions and two regular sessions. He will take the first two subjects stated under each of the above Summer Sessions and complete the subjects of the two regular sessions in the order given above.

See, also, course of law under the Summer Session.

A candidate desiring to take the Summer Session program should enter a Summer Session at the beginning of his course; his program of sessions will then be as follows: (1) Summer Session; (2) Regular Session; (3) Summer Session; (4) Regular Session; (5) Summer Session.

**Courses of Study Open to Graduate Students.**

100.—CONSTITUTIONAL LAW. 'Five hours' credit. Daily, second semester, at 11:15. General principles governing constitutions; the United States and the states: establishment and amendment of constitutions; construction and interpretation; de-

partmental powers; police power; eminent domain; taxation; civil rights; constitutional guaranties; laws impairing the obligation of contracts; retroactive laws. Professor Green.

101.—COMMON LAW PLEADING. Two and one-half hours' credit. Daily, first half of first semester, at 8. An analytical and historical study of the law of remedies at common law, including ancient modes of trial; special topics assigned, such as *assumpsit*, *trover*, *trespass*, for historical investigation of the development of the law of contracts and of torts. Professor Higgins.

102.—JURISPRUDENCE. Two and one-half hours' credit. Daily, first half of first semester, at 11:15. An analytical study of the elements of jurisprudence, viz.: the science of human relations regulated by positive law; the theories of the state, sovereignty and government; an historical examination of the systems of English and American common law and equity. Selected readings. Special topics and weekly conferences. Associate Professor Humble.

103.—ROMAN LAW. One hour a week for twenty-seven weeks, first semester and first half of second semester, at 9. Development and extension of Roman law; its revival and present influence; the *corpus juris civilis*; the law of persons, of the family, of property, of servitudes, of obligations, of delicts, of inheritance, of procedure, of criminal law, etc. Professor Burdick.

#### For Mining Engineering Students.

MINING LAW. A course outlining the laws relating to the mining industries. Lectures and recitations, one hour per week, second semester, in alternate years. Given in 1912-'13. Omitted in 1913-'14. Text, Costigan on Mining Law. Mining students must take this course before graduating. Associate Professor Humble.

## VI. *The School of Pharmacy.*

### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM H. CARRUTH, PH. D., Vice President, and Professor of Germanic Languages and Literatures.

LUCIUS E. SAYRE, PH. M., Dean, and Professor of Pharmacy and Materia Medica.

EDGAR H. S. BAILEY, PH. D., Professor of Chemistry.

ERASMUS HAWORTH, PH. D., Professor of Mineralogy.

WILLIAM C. STEVENS, M. S., Professor of Botany.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

IDA H. HYDE, PH. D., Professor of Physiology.

WILLIAM E. HIGGINS, LL. B., Professor of Law.

L. D. HAVENHILL, B. S., Professor of Pharmaceutical Chemistry.

F. E. KESTER, Professor of Physics.

H. P. CADY, Professor of Chemistry.

T. H. BOUGHTON, Professor of Bacteriology and Pathology.

ELMER F. ENGEL, A. M., Associate Professor of German.

JOHN N. VAN DER VRIES, PH. D., Associate Professor of Mathematics.

FREDERICK H. BILLINGS, PH. D., Associate Professor of Botany and Bacteriology.

F. B. DAINS, Associate Professor of Chemistry.

CHARLES M. STERLING, A. B., Assistant Professor of Pharmacognosy.

HERBERT W. EMERSON, B. S., (Secretary), Assistant Professor of Pharmacy.

GEORGE N. WATSON, A. B., PH. C., Assistant Professor of Pharmacy.

C. A. NASH, Instructor in Chemistry.

ARTHUR EARL STEVENSON, PH. C., Assistant in the Drug Laboratory.

## PURPOSE OF THE SCHOOL.

The object of this school is to give its students a thorough practical training in all of those branches connected with the pharmaceutical profession in its various departments. Special emphasis is purposely placed upon chemistry, as this is the foundation of all pharmaceutical work.

The three courses offered by the school are arranged logically and progressively; the instruction is given according to modern methods, and in the spirit of those principles which, in their application to other classes of modern technical schools, have proved so eminently successful.

Students desiring to fit themselves for food and drug analysts can arrange a course with the two departments, pharmacy and chemistry. The details of such a course will be outlined by the department, covering the period of time that the student may elect to spend in preparation.

## DEGREES.

The courses of study in the School of Pharmacy lead to the following degrees:

Bachelor of science.

Pharmaceutical chemist.

Graduate in pharmacy through the Department of University Extension.

## REQUIREMENTS FOR ADMISSION.

There are two methods of admission to the School of Pharmacy: First, by examination; second, by certificate.

### 1. BY EXAMINATION.

Times and place of examination for subjects required for admission to the School of Pharmacy will be found in this catalogue, on page 109.

### 2. BY CERTIFICATE.

Candidates for admission to the two- and three-year courses must present certificates of graduation from accredited schools, or certificates of the completion of two years' work in high school (in 1913 three and in 1914 four years' work in an accredited high school will be required) or its equivalent. Students of mature years who have had two or more years drug-store experience will receive credit on some of the required high school work.

Students having entrance deficiencies are required to enroll in the three-year course.

### FOR THE FOUR-YEAR COURSE.

Candidates for admission to the four-year course must conform, by examination or certificate, to the requirements for entrance to the Freshman year of the College. During the first



two years students taking the four-year pharmacy course are enrolled in both the College and the School of Pharmacy, and pursue such College courses as are included in the curriculum of the School of Pharmacy. They are required to pay only the College incidental fee as long as their work is confined to courses offered in the College.

### UNCLASSED STUDENTS.

Unclassed students (formerly known as "special students"), not candidates for a degree, may be admitted to the School of Pharmacy without conforming to the requirements for entrance. The admission of such students is under the control of the Dean, and his certificate of recommendation must be procured before the student presents himself to the Registrar.

### FEES AND EXPENSES.

For fees and expenses, see page 55.

### POSITIONS FOR GRADUATES.

As an adjunct to the Pharmaceutical Society, an "annex" was established in 1890, whose aim it is to secure positions for graduates, and clerks for employers, who are graduates of the school. At present the demand is greater than the supply.

### LIBRARY.

The school possesses an extensive library, and is the regular recipient of the leading pharmaceutical journals and periodicals of America, England, Germany, and France.

The pharmaceutical library is also custodian of a very generous gift, by Parke, Davis & Co., of a library consisting of pharmacy and medical journals. These are of great value in research and investigational work.

For the convenience of students in chemistry and pharmacy, a branch library is provided in the building and adjacent to the chemical and pharmaceutical laboratories, where all the principal reference books and periodicals may be found.

### COLLECTIONS.

The Pharmacy School possesses an extensive herbarium of medicinal plants, together with a collection of photographs representing nearly 200 species. This, in conjunction with the large herbarium of the botanical department, is available to students. Several hundred microscope slides are at hand for use with the projection lantern, showing various drugs in cross and longitudinal section, as well as in powdered form; a large assortment of lantern slides, illustrating plants, drugs, prescriptions, pharmacies, and places and subjects of pharmaceutical interest, several cases of crystal models, an extensive collection of official and unofficial salts, alkaloids, drugs and medicines, besides numerous smaller collections of particular interest.

## LOCATION.

The School of Pharmacy occupies the first two floors and basement of the east wing of the Chemistry and Pharmacy Building.

Laboratory instruction for pharmacy students is also given in the laboratories of the following departments: Chemistry, bacteriology, botany, mineralogy, physiology, and physics.

## APPARATUS.

For the various practical courses offered by this school a large amount of laboratory apparatus, of domestic and foreign types, is supplied. The various laboratories are equipped for manufacturing purposes, so that any preparation of the United States Pharmacopœia can be made by any of the official methods, and, in addition, appliances and materials are at hand for the unofficial and extra-pharmacopœial products.

The lecture table is abundantly supplied with illustrative apparatus, so that the student may see before him the various processes in operation which may be carried on in the laboratories and at the prescription counters. Care has been taken to illustrate pharmacy in all its phases.

## REGISTRATION—STATE BOARD OF PHARMACY.

Graduates of the School of Pharmacy may become registered pharmacists in Kansas without examination upon presenting to the State Board of Pharmacy satisfactory evidence of having had the required amount of practical experience. The practical experience required for the different courses is as follows:

Thirty months for graduates of the two-year course.

Twenty-one months for graduates of the three-year course.

Twelve months for graduates of the four-year course.

## A SUMMER SCHOOL COURSE.

During the summer of 1912, beginning June 9, a course of six weeks in pharmacy will be offered.

This course is designed especially for drug clerks of mature years who are desirous of an opportunity to increase their knowledge and efficiency in a short time.

Clerks who desire to prepare themselves for State Board of Pharmacy examination will find this course especially adapted to their needs.

Instruction will be given in pharmacy, pharmaceutical chemistry, materia medica, prescriptions, and identification. Supplemental work will be given in the excellently equipped laboratories of the school, and particular attention will be given to preparing and dispensing drugs in accordance with the "pure food and drugs law."

The Summer School course will be especially valuable to those who desire practical drill in connection with their correspondence course.

This course is open to all who are qualified to pursue it to advantage; no formal entrance requirements are exacted.

A record will be kept of all work done of university grade and such work will be credited towards a degree when the candidate has fulfilled the requirements for entrance to the regular course.

**FEES AND EXPENSES.**—The fees for the Summer School will be ten dollars for Kansas students; for nonresidents, fifteen dollars. For the laboratory work there will be, in addition, the cost of material.

For further information, address Prof. L. D. Havenhill, Lawrence, Kan.

## CORRESPONDENCE-STUDY DEPARTMENT.

### UNIVERSITY EXTENSION DIVISION.

#### PHARMACY.

LUCIUS E. SAYRE, PH. M.,

Dean, and Professor of Pharmacy and Materia Medica.

L. D. HAVENHILL, PH. M., Professor of Pharmaceutical Chemistry.

IDA H. HYDE, PH. D., Professor of Physiology.

#### PHARMACY CORRESPONDENCE COURSE.

These courses provide many opportunities to those who can not attend the University. Among them are: (1) Home-study courses, for persons who contemplate the vocation of pharmacy but lack some of the entrance requirements exacted by the preliminary education demanded by the State Board of Pharmacy; (2) means of preparing for registered assistant Pharmacist; (3) means of preparing for registered pharmacist's examination; (4) means of keeping abreast of the times in those subjects applicable to the practice of pharmacy, in which science is making additions to our knowledge.

The fees will be those regularly required in the School of Pharmacy, with an additional fee of \$5 per course to cover the expense of postage, stationery, typewriting, etc. The additional expense for material used in resident work will, with economy, range from \$8 to \$12 per six weeks' session.

A new course is offered leading to the degree of Graduate in Pharmacy (Ph. G.), which is intended primarily to foster the spirit of apprenticeship and to establish a more cordial relation between apprentice and preceptor, and thus advance the interests of pharmacy as a vocation.

The course will consist of forty assignments each in the following branches and their subdivisions: (a) Chemistry, (b) materia medica, (c) pharmacy; and two Summer Sessions of six weeks each in the laboratories of the School of Pharmacy at Lawrence. The course is intended to extend over two calendar years (sixty assignments per year). Students taking this course are subject to the regulations of the Correspondence-Study Department.

Candidates for the degree of Ph. G. must be of good moral character and have completed the prescribed course of study with a rating of not less than 70 per cent in each subject. Evi-

dence must be furnished that the candidate has had four years' practical experience in a store where physicians' prescriptions are regularly compounded and drugs and medicines sold.

# ORDER OF STUDY RECOMMENDED LEADING TO DEGREE OF PH. G.

## FIRST YEAR.

<i>By Correspondence.</i>	<i>Summer Session in Residence.</i>
A I, 20 assignments.	A III.
B I, 10 "	C VII.
B II, 10 "	Quiz and recitation, 1 hr. daily.
C I, 8 "	
C II, 7 "	
C III, 5 "	
<hr/>	
Total, 60 assignments.	

## SECOND YEAR.

<i>By Correspondence.</i>	<i>Summer Session in Residence.</i>
B II, 20 assignments.	A IV.
B III, 15 "	B V.
B IV, 5 "	C VIII.
C IV, 15 "	Quiz, 1 hr. daily.
C V, 3 "	
C VI, 2 "	
<hr/>	
Total, 60 assignments.	

## DESCRIPTION OF COURSE LEADING TO DEGREE OF PH. G.

### *Pharmaceutical Chemistry.*

- A I.—Elementary Pharmacy Physics, and Pharmacy Inorganic Chemistry. First year, 20 assignments.
- A II.—Organic Pharmacy Chemistry, including a discussion of the organic chemicals of pharmacal interest. Should follow course A I. Second year, 20 assignments.
- A III.—Pharmaceutical Analytical Chemistry, Inorganic, Qualitative and Quantitative, as applied in pharmaceutical testing. Given in resident Summer Session and to those who have passed course A I. First year.
- A IV.—Pharmaceutical Analytical Chemistry, Organic, Qualitative and Quantitative, as applied in pharmaceutical testing. Given only in resident Summer Session and to those who have passed A II and A III. Second year.

### *Materia Medica.*

- B I.—A brief outline of Physiology and introduction to the subject of Materia Medica. First year, 10 assignments.
- B II.—Pharmacognosy, with botanical introduction. First year, 10 assignments.
- B III.—Pharmacological and Therapy Dynamics. Given only to those who have passed course B II. Second year, 15 assignments.



*Materia Medica.*

- B IV.—Toxicology and Posology. Given in connection with B III. Second year, 5 assignments.  
 B V.—Histological Pharmacognosy. Given only in Summer Session (resident) and to those who have passed course B II. Second year.

*Pharmacy.*

- C I.—Metrology, Specific Gravity, and Pharmaceutical Arithmetic. First year, 8 assignments.  
 C II.—Descriptive Pharmacy. Terms, processes and apparatus used in pharmaceutical operations. First year, 5 assignments.  
 C III.—Official Pharmacy. The pharmaceutical classification of medicines. First year, 5 assignments.  
 C IV.—Official Pharmacy. A critical discussion of the pharmaceutical preparations. Given only to those who have passed course C III. Second year, 15 assignments.  
 C V.—Pharmaceutical Latin and Principles of Prescription Writing. Second year, 3 assignments.  
 C VI.—Pharmaceutical Jurisprudence. Second year, 2 assignments.  
 C VII.—Manufacturing Pharmacy. Given only in resident Summer Session to those who have passed courses A I and C I and II and III. First year.  
 C VIII.—Extemporaneous Pharmacy. Given only in resident Summer Session to those who have passed course C VII. Second year.

*Quizzes.*

Daily quizzes, written and oral, covering the scope of the assignments will be the feature of the summer resident work. The grades and attendance in these quizzes will play an important part in determining the candidate's fitness for graduation.

The following courses correspond to similar courses offered in residence at the University of Kansas. The studies may be taken for credit, to apply in the regular Pharmacy course, by those who possess the essential entrance requirements.

<i>Botany.</i>	Assign- ments.	Hours' credit.
I.—General Morphology of Plants.....	40	5
II.—Plant Histology.....	40	5
<i>Chemistry.</i>		
I.—Elementary Chemistry.....	40	5
II.—Quantitative Analysis.....	40	5
<i>English.</i>		
I.—Rhetoric and English Composition...	40	5
<i>French.</i>		
I.—Elementary French, Part A.....	40	5
II.—Elementary French, Part B.....	40	5

<i>German.</i>	Assign- ments.	Hours' credit.
I.—German Grammar.....	40	5
II.—German Reader.....	40	5
III.—German Prose.....	40	5
IV.—Schiller's Wallenstein.....	40	5
<i>Mathematics.</i>		
I.—Solid Geometry.....	20	2½
II.—University Algebra.....	24	3
III.—Plane Trigonometry.....	16	2
IV.—Analytical Geometry.....	32	4
<i>Physics.</i>		
I.—Elementary Physics.....	24	3
II.—Sound, Light and Electricity.....	24	3

Further information concerning the scope of the above courses will be found under the proper heading in the description of courses in the School of Pharmacy, or in the Bulletin of the Correspondence-study Department, Extension Division of the University of Kansas, a copy of which will be gladly mailed upon request.

#### PHARMACY AND MATERIA MEDICA.

The following technical courses correspond to similar courses offered in residence at the University of Kansas. The studies may be taken for credit, to apply in the regular pharmacy course, by those who possess the essential entrance requirements.

**SUMMER SCHOOL.** Students who find it desirable to supplement the work in the course by laboratory practice in pharmaceutical manipulation will be provided in the Summer School course with ample facilities for such work.

**COURSE 2.—ORGANIC MATERIA MEDICA.** Professor Sayre. This course embraces the classification, physical description and chemical constitution of the crude drugs of the pharmacopœias; their chemical and physiological properties; methods of prescribing and dispensing; the action of organic and inorganic chemicals and their physiological relationships. Twenty assignments, two and one-half hours' pharmacy credit.

**COURSE 3.—PHARMACY PHYSIOLOGY.** Professor Hyde. This course is designed to meet the needs of pharmacists and to fulfill the legal requirements for pharmacists in the state of Kansas, and corresponds to the course offered in the School of Pharmacy. It is a brief course in physiology and hygiene, consisting of recitation and demonstration based upon the essential structures and functions of the human body, supplemented by practical laboratory experiments. The treatment of emergency cases, observations on the action of drugs upon the tissues, the relation of the different organs and bones to each other, and the structure of the chief tissues, are some of the subjects dealt with. Twenty assignments, two and one-half hours' pharmacy credit.

## PROGRAM OF STUDIES.

The School of Pharmacy offers three complete programs of study, one of two years and one of three years—both leading to the degree of pharmaceutical chemist—and one of four years, leading to the degree of bachelor of science.

### THE TWO-YEAR PROGRAM.

This is the regular course in pharmacy, first established by an act of the legislature, and leads to the degree of pharmaceutical chemist (Ph. C.). The curriculum is confined to pharmaceutical work. The higher work of the other courses gives greater breadth of training, and prepares students for service with larger concerns and with manufacturing chemists.

### THE THREE-YEAR PROGRAM.

This course is endorsed by the Kansas Pharmaceutical Association, and is especially recommended to those students who have had no drug-store experience and to those who have entrance deficiencies. Special opportunities are offered in this course for work in the field of drug standardization and analysis. The course leads to the degree of Ph. C. Besides the diploma, a special certificate of proficiency is issued by the Dean upon the completion of the course of study outlined.

### THE FOUR-YEAR PROGRAM.

This course, leading to the degree of bachelor of science, from which the student graduates on a plane with the regular students of the College, opens the door, as does the bachelor of arts degree, to the degree of master of arts or doctor of philosophy, should the student desire to pursue his studies to that extent, and thus prepare himself for the higher calling of educational or higher technical work.

## TWO-YEAR COURSE.

Leading to the Degree of Pharmaceutical Chemist.

### *First Semester:*

#### JUNIOR YEAR.

Pharmacal Botany, (a), 10:15 to 12:15. Assistant Professor Sterling.

Plant Histology I, (b), 10:15 to 12:15. Assistant Professor Sterling.

Introductory Pharmacy, (a and b), Tuesday and Thursday, 8 to 9. Professor Havenhill.

Pharmaceutical Arithmetic, (a and b), Monday, Wednesday, and Friday, 8 to 9. Professor Havenhill.

Introductory Chemistry, (a and b), 1:30 to 3:30. Professor Bailey.

Materia Medica I, (b), 11:15 to 12:15. Professor Sayre.

NOTE.—The time for Materia Medica, Pharmacology and Toxicology may be changed to accommodate both Medical and Pharmacy students.

*Second Semester:*

- Plant Histology II (Elementary Pharmacognosy), (a), 8 to 10. Assistant Professor Sterling.  
 Pharmacognosy, (b), 9 to 10. Assistant Professor Sterling.  
 Official Pharmacy, (a), 10:15 to 11:15. Assistant Professor Watson.  
 Inorganic Medicinal Salts, (b), 10:15 to 11:15. Professor Havenhill.  
 Qualitative Analysis, (a and b), 1:30 to 3:30. Mr. Nash.

## SENIOR YEAR.

*First Semester:*

- Examination of Powdered Drugs, (a), 8 to 10. Assistant Professor Sterling.  
 Urinalysis, (b), 8 to 10. Assistant Professor Emerson.  
 Galenical Preparations, (a and b), 3:30 to 5:30. Assistant Professor Watson.  
 Organic Chemistry, (a and b), 1:30 to 3:30. Associate Professor Dains, and assistant.  
 Quantitative Analysis, (a), 10:15 to 12:15. Assistant Professor Allen.  
 Pharmaceutical Testing, (b), 10:15 to 12:15. Assistant Professor Emerson.

*Second Semester:*

- Drug Analysis, (a), 8 to 10, and (b), 1:30 to 3:30. Professor Havenhill.  
 Theory and Practice, (a), 10:15 to 11:15. Professor Havenhill.  
 Materia Medica, Pharmacology and Toxicology, (a and b),\* 11:15 to 12:15. Professor Sayre.  
 Dispensing, (a), 3:30 to 5:30. Assistant Professor Emerson.  
 Thesis, (a), 1:30 to 3:30. Professor Sayre.

## THREE-YEAR COURSE.

Leading to the Degree of Pharmaceutical Chemist.

## FIRST YEAR.

*First Semester:*

- Pharmacal Botany, (a), 10:15 to 12:15. Assistant Professor Sterling.  
 Plant Histology, (b), 10:15 to 12:15. Assistant Professor Sterling.  
 Introductory Chemistry, (a and b), 1:30 to 3:30. Professor Bailey.  
 Pharmaceutical Arithmetic, (a and b), Monday, Wednesday, and Friday, 8 to 9. Professor Havenhill.  
 Introductory Pharmacy, (a and b), Tuesday and Thursday, 8 to 9. Professor Havenhill.

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\* (a) For medical and (b) for medical and pharmacy students.



*Second Semester:*

Plant Histology II (Elementary Pharmacognosy), (a), 8 to 10. Assistant Professor Sterling.

Pharmacognosy, (b), 9 to 10. Assistant Professor Sterling.

Qualitative Analysis, (a and b), 1:30 to 3:30. Mr. Nash.

Official Pharmacy, (a), 10:15 to 11:15. Assistant Professor Watson.

Inorganic Medicinal Salts, (b), 10:15 to 11:15. Professor Havenhill.

## SECOND YEAR.

*First Semester:*

Examination of Powdered Drugs, (a), 8 to 10. Assistant Professor Sterling.

Materia Medica I, (b), 11:15 to 12:15. Professor Sayre.

Organic Chemistry, (a and b), 1:30 to 3:30. Associate Professor Dains.

Quantitative Analysis,\* (a and b), 3:30 to 5:30. Assistant Professor Allen.

*Second Semester:*

Drug Analysis, (a), 8 to 10, and (b), 1:30 to 3:30. Professor Havenhill.

Plant Analysis (elective), (b), 8 to 10. Professor Havenhill.

Physiology, (b), 8 to 10. Professor Hyde.

## THIRD YEAR.

*First Semester:*

Galenical Preparations, (a and b), 3:30 to 5:30. Assistant Professor Watson.

Bacteriology, (a and b), 1:30 to 3:30. Professor Boughton.

Pharmaceutical Testing, (b), 10:15 to 12:15. Assistant Professor Emerson.

*Second Semester:*

Thesis, (b), 9 to 11:15. Professor Sayre.

Theory and Practice, (a), 10:15 to 11:15. Professor Havenhill.

Materia Medica, Pharmacology and Toxicology (a and b),\* 11:15 to 12:15. Professor Sayre.

Physiological Chemistry, (a and b), 1:30 to 3:30. Assistant Professor Emerson.

Dispensing, (a), 3:30 to 5:30. Assistant Professor Emerson.

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\* These five-hour courses are recommended; students may substitute the two and one-half hour courses of the two-year course.

\* (a) For medical and (b) for medical and pharmacy students.

## FOUR-YEAR COURSE.

Leading to the Degree of Bachelor of Science in Pharmacy.

We recommend that candidates for the degree of bachelor of science in pharmacy shall complete, as far as possible, by the end of the Sophomore year, the following studies: German I to IV; French I and II; chemistry, I, II and III; botany I and II; mathematics, 5 hours; physics, 10 hours; English, 5 hours; physiology, 5 hours.

They must have sixty hours' credit in the College at the end of their Sophomore year.

## JUNIOR YEAR.

*First Semester:*

Pharmacal Botany,\* (a), 10:15 to 12:15. Assistant Professor Sterling.

Plant Histology I,\* (b), 10:15 to 12:15. Assistant Professor Sterling.

Introductory Pharmacy, (a), 8 to 9. Professor Havenhill.

Pharmaceutical Arithmetic, (b), 8 to 9. Professor Havenhill.

Organic Chemistry, (a and b), 1:30 to 3:30. Associate Professor Dains and assistant.

Quantitative Analysis, (a and b), 3:30 to 5:30. Assistant Professor Allen.

Materia Medica, (b), 11:15 to 12:15. Professor Sayre.

*Second Semester:*

Plant Histology and Elementary Pharmacognosy, (a), 8 to 10. Assistant Professor Sterling.

Pharmacognosy, (b), 9 to 10. Assistant Professor Sterling.

Official Pharmacy, (a), 10:15 to 11:15. Assistant Professor Watson.

Inorganic Medicinal Salts, (b), 10:15 to 11:15. Professor Havenhill.

Physiological Chemistry, (a and b), 1:30 to 3:30. Assistant Professor Emerson.

## SENIOR YEAR.

*First Semester:*

Examination of Powdered Drugs, (a), 8 to 10. Assistant Professor Sterling.

Galenical Preparations, (a and b), 3:30 to 5:30. Assistant Professor Watson.

Bacteriology, (a and b), 1:30 to 3:30. Professor Boughton.

Pharmaceutical Testing, (b), 10:15 to 12:15. Assistant Professor Emerson.

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\* If 10 hours of botany have been taken in College it will be substituted here.

*Second Semester:*

Drug Analysis, (a), 8 to 10; (b), 1:30 to 3:30. Professor Havenhill.

Physiology,† (b), 8 to 10. Professor Hyde.

Theory and Practice, (a), 10:15 to 11:15. Professor Havenhill.

Materia Medica, Pharmacology and Toxicology, (a and b),\* 11:15 to 12:15. Professor Sayre.

Dispensing, (a), 3:30 to 5:30. Assistant Professor Emerson.

Thesis, (a), 1:30 to 3:30. Professor Sayre.

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† If 5 hours of physiology have been taken in the College it will be substituted here.

\* (a) For medical students and (b) for medical and pharmacy students.

## DESCRIPTION OF COURSES IN THE SCHOOL OF PHARMACY.

### BOTANY AND PHARMACOGNOSY.

Professor STEVENS.  
Professor SAYRE.  
Professor BARBER.  
Assistant Professor STERLING.

1.—PHARMACAL BOTANY. Two and one-half hours' credit. An introduction to morphology and taxonomy of phanerogams. Laboratory work, recitations, and lectures. Required of Juniors entering without credit in botany. Credit may be given those who by presenting satisfactory proof show that their elementary work is equivalent to this course. First semester, (a), 10:15 to 12:15. Assistant Professor Sterling.

2.—ELEMENTARY BOTANY. Five hours, second semester, 1:30 to 3:30. An introduction to the forms and parts of plants, and the way typical plants perform their functions and conform to their environment. This course, or the equivalent in other schools, is a prerequisite to course III. Laboratory work, ten hours a week; reading, recitations and lectures. Professor Stevens, Assistant Professor Sterling and assistant.

3.—PLANT HISTOLOGY. Five hours, first semester, 1:30 to 3:30. A study of plant tissues, with special reference to their development and functions; plant products, their origin and physiological and biological significance; histological technique. Laboratory work, ten hours a week, recitations and lectures. Prerequisite, course I. Professor Stevens and assistant.

4.—PLANT HISTOLOGY. Two and one-half hours' credit. A study of the plant tissues; histological technique and the preparation of specimens. Open to all students who have had courses 1 or 3. Laboratory work, lectures and recitations. First semester, (b), 8 to 10. Assistant Professor Sterling.

5.—PLANT HISTOLOGY AND INTRODUCTION TO PHARMACOGNOSY. Two and one-half hours' credit. A continuation of course 4. Laboratory work, lectures and recitations. Second semester, (a), 8 to 10. Assistant Professor Sterling.

6.—PHARMACOGNOSY. Two and one-half hours' credit. A study of the geographical distribution, origin and physical characteristics of crude drugs. Lectures, recitations, and laboratory work. Must be preceded by course 3 or 5. Junior, second semester, (b), 9 to 10. Assistant Professor Sterling.

7.—BACTERIOLOGY. Five hours' credit. Bacteriological technique. Pathogenic bacteria, and other forms of economic importance. Laboratory work, reading, and lectures. First semester, (a and b), 1:30 to 3:30. Professor Boughton.



8.—THE ANALYSIS OF POWDERED DRUGS, SPICES, AND FOODS. Laboratory work, lectures, and recitations. Must be preceded by course 6. Second semester, (a), 1:30 to 3:30. Assistant Professor Sterling.

## CHEMISTRY.

Professor BAILEY.  
Professor SAYRE.  
Professor HAVENHILL.  
Associate Professor DAINS.  
Assistant Professor EMERSON.  
Assistant Professor ALLEN.

I.—INTRODUCTORY CHEMISTRY. Five hours' credit. A study of the chemical elements and their compounds. Experimental lectures, recitations, and laboratory work. Junior, first semester, (a and b), 1:30 to 3:30. Professor Bailey and assistants.

II.—PHARMACY QUALITATIVE ANALYSIS. Five hours' credit. Must be preceded by course I or College courses 1 and 2. Lectures, recitations, and laboratory work. Junior, second semester, (a and b), 1:30 to 3:30. Mr. Nash.

III.—PHARMACY QUANTITATIVE ANALYSIS. Two and one-half hours' credit. A course especially adapted to the needs of the pharmacist, involving the simpler methods of gravimetric and volumetric analysis. Lectures and laboratory work. Must be preceded by course II. Senior, first semester, (a), 10:15 to 12:15. Assistant Professor Allen.

IV.—QUANTITATIVE ANALYSIS. Five hours' credit. A course similar to III, extending over whole semester. First semester, (a and b), 3:30 to 5:30. Assistant Professor Allen.

V.—ORGANIC CHEMISTRY. A study of the hydrocarbons and their derivatives. Lectures and recitations, Monday, Wednesday, and Friday; laboratory work, Tuesday and Thursday. Must be preceded by courses I and II. Senior, first semester, (a and b), 1:30 to 3:30. Associate Professor Dains and assistant.

\*VI.—PHARMACEUTICAL TESTING I. Two and one-half hours' credit. Laboratory practice in testing the purity and strength of the inorganic medicinal chemicals of the United States Pharmacopœia. Must be preceded by course III or equivalent. First semester, (b), 10:15 to 12:15. Assistant Professor Emerson.

VII.—URINE AND STOMACH ANALYSIS. A ten-weeks course of lectures, recitations and laboratory work in stomach and urine analysis. Must be preceded by courses I, II, III, IV and V. First semester, (b), 8 to 10. Assistant Professor Emerson.

VIII.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours' credit. This course is offered to meet the requirements of medical students. Products of physiological interest are separated

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\* Courses VI, VII, XIII and XIV are especially recommended for those students who are preparing themselves for responsible positions as registered pharmacists; as proprietors of pharmacies, and as pharmaceutical chemists; for special work in analysis of drugs and medicines, now regulated by the pure food and drug law. The demand for pharmaceutical chemists in large establishments is one that the school will aim to supply, and the courses referred to will prepare students to occupy such positions.

from animal tissues and organs and studied in detail. Special attention is given to the study of carbohydrates, proteins, and the normal and abnormal products of animal life. The second part of the course consists of five weeks of urinalysis, embracing lectures, recitations, and work in both chemical and microscopical laboratories. Second semester, 1:30 to 3:30. Professor Sayre and Assistant Professor Emerson.

IX.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Analysis of such dietetics as are used in medicine, and the quantitative estimation of digestive ferments; the preparation of proximate constituents from animal tissues. Must be preceded by course VIII, and is open to all students who have passed that subject. Professor Sayre and Assistant Professor Emerson.

X.—FOOD ANALYSIS. A four-hour course in the study of foodstuffs and their analysis. This course is arranged especially for students who are preparing to be food and drug chemists. Assistant Professor Jackson.

XI.—PLANT ANALYSIS I. Two and one-half hours. The separation and estimation of the proximate principles of plants. Must be preceded by course III or equivalent. Elective, hours by appointment. Professor Havenhill.

XII.—PLANT ANALYSIS II. Two and one-half hours. A systematic course of advanced work in the analysis of the chemical constituents of plants. Must be preceded by course XI. Elective, hours by appointment. Professor Sayre.

XIII.—DRUG ANALYSIS. Five hours. The detection and estimation of potent drugs. Must be preceded by a course in quantitative analysis. Second semester, 8 to 10. Professor Havenhill.

XIV.—DRUG ASSAYING. Two and one-half hours' credit. Advanced work in the valuation and standardization of drugs. A research course, consisting of lectures, laboratory and library work, designed especially for those who desire to do advanced work in the subject. Must be preceded by courses I to V. By appointment. Professor Sayre.

XV.—ANALYSIS OF NOSTRUMS. Determination of composition of articles with secret formulas. Professor Sayre.

XVI.—PHARMACEUTICAL TESTING II. Two and one-half hours. Laboratory practice in testing the strength and purity of the organic chemicals of the United States Pharmacopœia. Must be preceded by a course in quantitative analysis. Elective, hours by appointment. Professor Havenhill.

51.—DRUG ANALYSIS II.—A continuation of Drug Analysis I. Two and one-half hours' laboratory practice in the qualitative and quantitative analysis of medicinal preparations, according to pharmacopœial and other approved methods. Elective, hours by appointment. Professor Havenhill.

FRENCH.

Professor GALLOO.  
 Assistant Professor NEUEN SCHWANDER.  
 Assistant Professor WARD.  
 Mr. WINTER.

1.—ELEMENTARY COURSE. Five hours. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation and in forms. First semester. Five divisions. Daily, at 8, 9, 10:15, 11:15, or 1:30. Prerequisite, three years of Latin or three years of German. Professor Galloo, Assistant Professor Neuen Schwander, Assistant Professor Ward, or Mr. Winter.

2.—ELEMENTARY COURSE. Five hours. A continuation of course 1. Reading of simple prose texts, with exercises in dictation and elementary composition. Second term, daily, at 11:15. Professor Galloo, Assistant Professor Neuen Schwander, Assistant Professor Ward, or Mr. Winter.

GERMAN.

Professor CARRUTH.  
 Associate Professor ENGEL.  
 Assistant Professor CORBIN.  
 Assistant Professor KRUSE.  
 Assistant Professor CAMPBELL.  
 Assistant Professor BRIGGS.  
 Assistant Professor STURTEVANT.  
 Mr. SPINDLER.  
 Miss WILSON.

1.—GERMAN GRAMMAR. Five hours. Carruth's Otis's Grammar, with composition exercises. Carruth's Reader, about fifty pages. First semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 2:30; second semester, daily, at 1:30. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Miss Wilson, and Mr. Spindler.

2.—GERMAN READER, completed, and SCHILLER'S WILHELM TELL (complete). Five hours. Also special exercises, in word order and auxiliary verbs and sight-reading. Second semester, daily, at 8, 9, 11:15, and 1:30; first semester, daily, at 2:30. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, Miss Wilson, and Mr. Spindler.

3.—GERMAN PROSE. Five hours. Lessing's Minna von Barnhelm. Sight-reading. First semester, daily, at 8, 9, 10:15, 11:15, 1:30, and 3:30; second semester, daily, at 9, 2:30, and 3:30. Associate Professor Engel, Assistant Professor Corbin, Assistant Professor Kruse, Assistant Professor Campbell, Assistant Professor Briggs, Assistant Professor Sturtevant, and Mr. Spindler.

## MATHEMATICS.

Professor YOUNG.  
Associate Professor VAN DER VRIES.  
Assistant Professor ASHTON.  
Assistant Professor MITCHELL.  
Assistant Professor PITCHER.

1.—SOLID GEOMETRY. Three hours, second semester, at 1:30. The usual theorems and constructions of standard textbooks and applications to the mensuration of surfaces and solids. Wentworth's Solid Geometry. Open to all students who do not offer solid geometry for entrance. Assistant Professor Mitchell.

2.—COLLEGE ALGEBRA. Three hours, both semesters—first semester, at 8, 9, 10:15, 11:15, 2:30; second semester, at 8, 9, and 2:30. Rapid review of exponents, radicals, and quadratic equations; graphical representation; complex numbers; logarithms; determinants; theory of equations; numerical equations of higher degree. Ashton's College Algebra. Assistant Professor Mitchell.

3.—PLANE TRIGONOMETRY. Two hours, both semesters—first semester, at 8, 9, 10:15, 11:15, and 2:30; second semester, at 8, 9, and 2:30. The six trigonometric functions; principal formulas of plane trigonometry; solution of triangles and practical problems. Ashton's Trigonometry. May be taken at the same time with course 1 or 2. Assistant Professor Mitchell.

4.—ANALYTIC GEOMETRY I. Two hours, both semesters—first semester, at 10:15 and 11:15; second semester, at 8, 9 and 2:30. The straight line and circle; plane and sphere; loci problems. Fine and Thompson's Coördinate Geometry. Open to all students who have completed courses 2 and 3. Assistant Professor Mitchell.

6.—ANALYTICAL GEOMETRY II. Two hours—first semester, at 11:15, second semester, at 10:15. Conic sections; higher plane curves; solid analytics. Fine and Thompson's Coördinate Geometry. Open to students who have completed course 4. Mr.

## PHARMACY AND MATERIA MEDICA.

Professor SAYRE.  
Professor BAILEY.  
Professor HAVENHILL.  
Assistant Professor EMERSON.  
Assistant Professor WATSON.

1.—PHARMACEUTICAL ARITHMETIC. Three hours. A study of weights, measures, specific gravity, and the principles of pharmaceutical arithmetic. Lectures and recitations. First semester, (*a* and *b*), Monday, Wednesday, and Friday, 8 to 9. Professor Havenhill.

2.—INTRODUCTORY PHARMACY. Two hours. The history of the Pharmacopœia and a study of the apparatus and processes employed in the preparation of medicines. Lectures and recitations. First semester, (*a* and *b*), Tuesday and Thursday, 8 to 9. Professor Havenhill.



3.—OFFICIAL PHARMACY. Two and one-half hours' credit. A systematic study of the official preparations, including their classifications, preparation, and preservation. Must be preceded by course 2. Lectures and recitations. Second semester, (a), 10:15 to 11:15. Assistant Professor Watson.

4.—GALENICAL PREPARATIONS. Five hours' credit. Practical work in the manufacture of standard medicinal preparations, as contained in the Pharmacopœia and National Formulary. Laboratory work and recitations. Must be preceded by course 2. Senior, first semester, (a and b), 3:30 to 5:30. Assistant Professor Watson.

5.—INORGANIC MEDICINAL SALTS. Two and one-half hours' credit. The source, manufacture, physical properties, general and specific characteristics and identity of inorganic substances used in medicine. Lectures, recitations, and laboratory work. Must be preceded by introductory chemistry. Junior, second semester, (b), at 10:15. Professor Havenhill.

6.—MATERIA MEDICA I. Two and one-half hours' credit. A critical study of the drugs and preparations of the U. S. Pharmacopœia and National Formulary. Lectures and recitations. Junior, first semester, (b), 11:15 to 12:15. Professor Sayre.

7.—ORGANIC MATERIA MEDICA AND PHARMACOLOGY. Four hours. The classification, physical description and chemical constitution of the crude drugs of the pharmacopœias; their chemical and physiological properties, and therapeutic application; methods of prescribing and dispensing; the action of organic and inorganic chemicals and their physiological relationships. Lectures and recitations. Senior, second semester, (a and b), Monday, Tuesday, Wednesday, and Thursday, at 11:15. Professor Sayre.

8.—TOXICOLOGY. One hour. Lectures on the sources, properties, methods for detection and antidotes for poisons. Must be preceded by fifteen hours of chemistry. Senior, second semester, Thursday, at 11:15. Professor Bailey.

NOTE.—The time at which courses Nos. 6, 7 and 8 will be given may be changed to accommodate both Medical and Pharmacy students.

9.—THEORY AND PRACTICE OF PHARMACY AND PHARMACEUTICAL CHEMISTRY II. Two and one-half hours' credit. A critical review of the official and unofficial organic chemicals used in medicine—volatile oils, alkaloids, glucosides, and a study of the impurities, adulterations, identifications, tests, etc. Senior, second semester, (a), 10:15 to 11:15. Professor Havenhill.

10.—DISPENSING. Two and one-half hours' credit. Compounding of prescriptions and a practical study of incompatibilities. Lectures and laboratory work. Senior, second semester, (a), 3:30 to 5:30. Assistant Professor Emerson.

11.—THESIS. Two and one-half hours' credit. Original research in one of the subjects connected with the pharmaceutical profession. An outline of the work should be presented to the Dean by the middle of the second semester. Senior, second semester, (b), 1:30 to 3:30.

12.—**LIBRARY WORK.** Specially designed to familiarize the student with pharmaceutical literature; will include exercises in indexing and reviewing various topics. Second semester, (b), hours by appointment. Professor Sayre.

13.—**PRACTICAL EXERCISES.** Two and one-half hours' credit. These will include the care of the prescription room, stock taking, etc. Must be preceded by courses 1 and 4 and pharmacognosy. By appointment. Assistant Professor Emerson.

14.—**Manufacture of artificial fruit essences and other compound ethers.** Professor Sayre.

15.—**PHARMACEUTICAL JURISPRUDENCE.** Relating to the laws pertaining to pharmacy in different states, and to the laws pertaining to the mercantile business, together with practical business suggestions. A course of not less than ten lectures, given in connection with the Pharmaceutical Society. Hours by appointment. Professor Higgins.

16.—**INTRODUCTORY PHARMACOLOGY.** Two hours. A course designed for medical students, embracing metrology, and the processes and apparatus used in the preparation of medicines, including the elements of prescription writing and a brief outline of the official preparations. The work is supplemented by practical exercises in the pharmaceutical laboratory. First semester, 3:30 to 5:30. Professor Havenhill.

17.—**LABORATORY WORK IN PHARMACOLOGY.** This is an introductory course inaugurated in connection with the drug laboratory and Board of Health. It has become an absolute necessity to provide means for ascertaining the physiological action of certain unknown compounds that are placed upon the drug market. As this work requires facilities for pharmacological investigation, it will be utilized for the purpose of instruction and research in connection with the Board of Health and in connection with the University Medical and Pharmacy Schools. The students electing this work will be obliged to arrange with the Dean, or the department of physiological chemistry, for the amount and kind of work he desires to perform, then appointments for such work as is desired in connection with the course in physiological chemistry and advanced materia medica will be allowed.

### PHYSICS.

Professor KESTER.

Assistant Professor STIMPSON.

1.—**ELEMENTARY PHYSICS.** Five hours, first semester. Lectures and recitations, Monday, Wednesday, and Friday, at 9, and two two-hour laboratory periods per week, Monday and Wednesday, from 3:30 to 5:30, or Tuesday and Thursday, from 8 to 10. Open to students of the College and of the Medical and Pharmacy Schools. This course is descriptive and experimental, and is intended for those who desire a general knowledge of the subject, and who have had no previous work in physics. Prerequisites, algebra and geometry. Assistant Professor Stimpson.

2.—**ELEMENTARY PHYSICS.** Five hours, second semester. A

continuation of course 1, with the same schedule. Assistant Professor Stimpson.

Students who have received credit for entrance physics, one unit, may take either or both of the above courses and receive three-fifths of the regular credits above.

### PHYSIOLOGY.

Professor HYDE.

1.—PHYSIOLOGY. A brief course in physiology. Two and one-half hours' credit. Lectures and recitations, with demonstrations, based upon the essential structures and functions of the human body, are supplemented twice a week by practical work in the laboratory. The treatment of emergency cases, observations on the action of drugs upon tissues, the relations of the different organs and bones to each other and the structure of the chief tissues are some of the subjects undertaken by each student. Senior, second semester, (b), 8 to 10. Professor Hyde.

### PHARMACY.

Professor SAYRE.

Assistant Professor EMERSON.

For equipment, see under School of Pharmacy.

#### *For Graduates.*

100.—PHYTOCHEMISTRY (Plant Chemistry). Five hours, first or second semester. Original investigation and research work on the chemical constituents of plants, dealing especially with such constituents as exert a marked physiological action when introduced into the animal economy. Professor Sayre and Assistant Professor Emerson.

101.—ADVANCED COURSE IN THE CHEMISTRY OF DIGESTION. Lectures, recitation and laboratory work on the chemistry of digestion. The last half semester devoted to research work on the digestion of foodstuffs. Five hours, first semester. Professor Sayre and Assistant Professor Emerson.

102.—DRUG ANALYSIS. Five hours, first or second semester, by appointment. This course is arranged especially for those who are preparing to be food and drug chemists. Professor Havenhill.

The following courses are open to advanced undergraduates also. For description, see page 185.

150.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. Assistant Professor Emerson.

151.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. Professor Sayre and Assistant Professor Emerson.

## VII. *The School of Medicine.*

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### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM HERBERT CARRUTH, PH. D., Vice President.

SAMUEL JAY CRUMBINE, M. D., Dean.

MERVIN TUBMAN SUDLER, PH. D., M. D., Associate Dean, and Professor of Surgery.

EDGAR HENRY SUMMERFIELD BAILEY, PH. D., Professor of Chemistry and Metallurgy.

LUCIUS ELMER SAYRE, B. S., PH. M., Professor of Pharmacy.

WILLIAM LIVESEY BURDICK, PH. D., LL. B., Professor of Law.

CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.

MARSHALL ALBERT BARBER,\* A. M., Professor of Bacteriology and Pathology, and Director of the Clinical Laboratories.

JAMES NAISMITH, A. B., M. D., Professor of Physical Education.

L. D. HAVENHILL, PH. M., B. S., Professor of Pharmacy.

IDA HENRIETTA HYDE, PH. D., Professor of Physiology.

THOMAS HARRIS BOUGHTON, B. S., M. D., Professor of Bacteriology and Pathology.

EDWARD JAMES CURRAN, M. D., D. Ophth., Professor of Anatomy.

JOSEPH E. SAWTELL, M. D., Professor of Rhinolaryngology.

DON CARLOS GUFFEY, A. B., M. D., Professor of Obstetrics and Gynecology.

FRANKLIN E. MURPHY, M. D., Professor of Internal Medicine.

JACOB BLOCK, M. D., Professor of Genito-urinary Surgery.

JOHN WALTER PERKINS, A. B., M. D., Professor of Surgery (Surgical Diagnosis).

ISADORE JULIUS WOLF, M. D., Professor of Internal Medicine.

ANDREW WALTER MCALESTER, JR., A. B., M. D., Professor of Ophthalmology.

CLARENCE CASE GODDARD, M. D., Professor of Neurology.

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\* On leave of absence.



- S. S. GLASSCOCK, M. D., Professor of Psychiatry.
- GEORGE M. GRAY, M. D., Clinical Professor of Surgery.
- HENRY O. HANAWALT, M. D., Professor of Neurology.
- DAVID RITTENHOUSE PORTER, M. D., Professor Emeritus of Internal Medicine, and Lecturer on Life Insurance.
- LYMAN L. UHLS, M. D., Professor of Psychiatry.
- ZACHARIAH NASON, M. D., Clinical Professor of Obstetrics.
- CHARLES J. LIDIKAY, M. D., Clinical Professor of Ophthalmology.
- JAMES W. MAY, M. D., Clinical Professor of Ophthalmology.
- WILLIAM KIRK TRIMBLE, M. D., Associate Professor of Clinical Pathology.
- ARTHUR E. HERTZLER, M. D., PH. D., Associate Professor of Surgery.
- ANDREW L. SKOOG, M. D., Associate Professor of Neurology.
- WALTER S. SUTTON, A. M., M. D., Associate Professor of Surgery.
- WILLIAM L. MCBRIDE, M. D., Associate Professor of Dermatology.
- RICHARD L. SUTTON, M. D., Associate Professor of Dermatology.
- JOHN N. SCOTT, M. D., Associate Professor of Electrotherapeutics.
- SAMUEL CHARLES EMLEY, A. B., M. D., Associate Professor of Rhinolaryngology.
- WILLIAM F. KUHN, A. M., M. D., Adjunct Professor and Lecturer.
- SIMON B. LANGWORTHY, M. D., Adjunct Professor of Gynecology.
- HARRY LESLIE CHAMBERS, M. D., Adjunct Professor of Hygiene.
- FRANK BURNETT DAINS, PH. D., Associate Professor of Chemistry.
- JESSE E. HUNT, M. D., Assistant Professor of Pediatrics.
- HERBERT WILLIAM EMERSON, PH. C., B. S., Assistant Professor of Pharmacy.
- WILLIAM JACOB BAUMGARTNER, A. M., Assistant Professor of Zoölogy and Histology.
- JOHN G. HAYDEN, B. S., 1902, M. D., Assistant Professor of Surgery.
- RUSSELL A. ROBERTS, A. M., M. D., Assistant Professor of Rectal Surgery.
- CHESTER H. HEUSER, A. B., Assistant Professor of Embryology.

ERNEST LYMAN SCOTT, M. S., Assistant Professor of Physiology.

CLAY E. COBURN, M. D., Lecturer on State Medicine.

EDWARD PARK HALL, M. D., Assistant in Rhinolaryngology.

PETER THOMAS BOHAN, M. D., Instructor in Internal Medicine.

CLARENCE B. FRANCISCO, M. D., Instructor in Surgery.

CLIFFORD C. NESSELRODE, M. D., Instructor in Surgical Anatomy.

LOGAN CLENDENING, M. D., Instructor in Medicine.

ROBERT DOUGLAS IRLAND, M. D., Instructor in Obstetrics.

NATHAN BOGGS, M. D., Instructor in Medicine.

#### THE COUNCIL.

EDGAR H. S. BAILEY, PH. D., Chemistry.

LUCIUS E. SAYRE, B. S., PH. M., Pharmacy.

CLARENCE E. MCCLUNG, PH. D., Zoölogy.

THOMAS H. BOUGHTON, B. S., M. D., Bacteriology and Pathology.

EDWARD J. CURRAN, M. D., D. Ophth., Anatomy.

FRANKLIN E. MURPHY, M. D., Internal Medicine.

DON CARLOS GUFFEY, A. B., M. D., Obstetrics and Gynecology.

WILLIAM K. TRIMBLE, M. D., Clinical Pathology.

WALTER S. SUTTON, A. M., M. D., Surgery.

JOSEPH E. SAWTELL, M. D., Rhinolaryngology.

## FOUNDATION, PURPOSES AND ORGANIZATION.

In the act of the legislature establishing the University the founding of a Medical School was contemplated, but conditions were such that until recently it was not possible to carry out the plans which were then laid. Some steps were taken, as opportunity offered, to further the formation of a Medical School, and in 1880 the "Preparatory Medical Course," under the administration of the College, was started. Until 1899 this was the only indication that the University was interested in the subject of medical education. That year the School of Medicine was definitely organized, and the first two years of a modern course was offered to students.

In the fall of 1905, the Kansas City Medical College, founded in 1869, the Medicochirurgical College, founded in 1896, and the College of Physicians and Surgeons, founded in 1893, were merged into the last two years of a complete medical course under direction of the University of Kansas, and clinical instruction was offered. This was made possible through a gift to the University of some tracts of land in and about Rosedale, Kan., by Dr. Simeon B. Bell, in memory of his wife, Eleanor Taylor Bell. The work was first given in the laboratory and lecture rooms of the building which had formerly belonged to the College of Physicians and Surgeons (Kansas City, Kan.), and a dispensary was conducted in the building of the Medicochirurgical College (Kansas City, Mo.). In January, 1907, the school was moved to the new buildings which had been erected in Rosedale, on the land above referred to.

### ADMINISTRATION.

#### THE FACULTY.

The Faculty of the School of Medicine includes members who give instruction in the work of the first and second years at Lawrence, and those giving instruction in the work of the third and fourth years at Rosedale.

#### THE COUNCIL.

The Council of the School of Medicine has charge of matters affecting the School as a whole, subject to the rules of the Board of Regents. It is made up of the Chancellor of the University, as chairman, the dean, the associate dean, five professors and associate professors from the departments at Lawrence, and five from the departments at Rosedale.

## THE ADMINISTRATIVE COMMITTEE.

Owing to the difficulty and inconvenience in getting the entire Faculty together to act on various matters in the work of the last two years, the five representatives appointed to the Council from Rosedale, together with the dean and associate dean, compose an Administrative Committee. This committee considers requests, petitions, and executive matters not specifically provided for in the regulations of the School.

## THE WORK AT LAWRENCE.

The work of the first year and a half is given at Lawrence. It consists of the fundamental scientific branches, anatomy, histology, embryology, physiology, pathology, chemistry, bacteriology, etc., which are given in the well-equipped University laboratories. Medical students have all the advantages of libraries, museum and lectures that are to be found in a large educational institution.

Students should matriculate and register for the first two years at Lawrence.

## THE WORK AT ROSEDALE.

The work of the last half of the second year and of the third and fourth years is intended to familiarize the student with the various manifestations of diseases and their treatment. Much of this work is done by the bedside; and the student has an opportunity to observe all the processes of making a diagnosis and prescribing the treatment, and, in fact, to follow the case through its entire stay in the hospital.

## REQUIREMENTS FOR ADMISSION.

The requirements for entrance to the Medical School include two years of approved college work, equivalent to the first two years' work leading to the bachelor's degree in this University. About one-third of the medical schools of the United States have established similar entrance requirements.

There are two methods of admission to the School of Medicine: First, by examination; second, by certificate.

## 1. BY EXAMINATION.

Students who can not present certificates from accredited colleges will be examined in the subjects required for admission, at the University, Lawrence, May 23, 24, 25, or September 18, 19, 20, 1912. Subjects upon which the candidate will be examined are given below.

## 2. BY CERTIFICATE.

A certificate from an accredited college granting the degree of bachelor of arts or of science, stating that the applicant has completed two years of the required work for this degree, including general chemistry, will be accepted without examination. Graduates from state normal schools and academies not grant-



ing a degree will be accepted, provided the work completed is sufficient to admit them to the Junior class of the College of Liberal Arts and Sciences of the University of Kansas. Graduates of state normal schools outside of the state of Kansas, whose credits are accepted by another state university, may be admitted under the same conditions.

The student who has completed the first two years of college work in another school, and who desires to enter the Medical School, should send a certified transcript of his work to the chairman of the advanced standing committee, or to the associate dean at Lawrence. A rating will then be given on this work, showing under just what conditions he will be accepted by the School of Medicine.

A student may be conditioned in six hours' work, which amount can be completed in the following session of the Summer School, but this condition must be removed before entering upon the third year's work in the Medical School.

For the high-school units required to enter the College, see page 111. During the high-school or the two years' college work the student should have completed the amount of work given in the list of subjects below:

Subject.	Equivalent to courses in K. U. College of Liberal Arts and Sciences.	Number hours considered necessary.	Number hours considered advisable.
German .....	Nos. 1, 2 and 3	20	20
French .....	1 and 2	..	15
Physics .....	1	5	10
Chemistry .....	1 and 3	10	15
Zoölogy .....	1	5	10

Beginning with September of 1913 organic chemistry will be required for entrance to the Medical School.

#### OPTIONAL WORK.

Language.	} According to the needs and college requirements of the individual student as determined by consultation with the Dean of the Medical School or his representative.
History.	
Economics.	
Psychology.	

The courses here outlined summarize the subjects and the amount of work that is desirable for the prospective student of medicine to complete while in the College. As practically every student will have had physics, chemistry or German in the preparatory schools, *the schedule in the College should be modified to suit the needs of the individual.* A student who has completed a course of chemistry equivalent to course 1 is advised to take French in its place in the first term of the first year and to take a five-hour course in organic chemistry in the Sophomore year. One who enters with three credits in German should take French in its place in the first and second terms of the Freshman year. A student with a course of satisfactory high-school physics should substitute courses in language or history. In the

In order to obtain a reading knowledge of scientific French it is necessary for the average student to complete at least ten hours' work, and fifteen hours' work is desirable. In order to obtain a reading knowledge of German about twenty hours' work is required, which necessitates the study of German for at least two years. Three years of some language (preferably Latin) should be taken in the high school as a preparation for the study of German and French.

As every student will have from five to fifteen hours of optional work and still comply with these requirements, the course can be adapted to the needs of the student, and advice will be gladly given to those arranging to take this work. In general, courses in language, history, economics and psychology are advised for these extra periods, in order to give the student as broad a foundation as possible preparatory to the technical studies which follow in the Medical School.

### ADVANCED STANDING.

Advanced standing in the third year of the course is granted upon examination in those subjects for which credit is desired at Rosedale. Candidates desiring such advanced standing must submit in detail a schedule of the work done by them and for which they wish credit; such schedules to be signed by the instructor in each subject or by a competent officer of the institution in which work was done. The necessity of a four-year registration in the Medical School and the two years' College work required for entrance must not be forgotten.

Matriculation fee, for residents of the state .....	\$5 00
for nonresidents .....	10 00
Incidental fee, for residents of the state .....	25 00
for nonresidents .....	35 00
Diploma fee, at graduation .....	5 00

Since September, 1909, two years of approved College work are required for admission to the School of Medicine. During the first year of the regular four-year course in medicine students are registered in both the School of Medicine and the College of Liberal Arts and Sciences, and may pay the College incidental fee for the first year so long as their work is confined to courses offered in the College.

Laboratory fees, to cover cost of material used, will be charged by the different departments. The amount of these fees will average about as follows: Anatomy, \$3.75 per part; physiology, \$10; histology, \$2.50; embryology, \$1.50; chemistry, \$5 to \$8; physiological chemistry, \$3; bacteriology, \$2.50; pathology, \$2; making the total amount about \$60 per year for residents of Kansas, and about \$80 for nonresidents.

All laboratory fees must be paid within ten days of the beginning of the semester's work.

### FEES IN THE THIRD AND FOURTH YEARS.

Students who register in the departments at Rosedale, not having been previously enrolled as students of the University of Kansas, are required to pay the regular matriculation fee—for residents of Kansas, \$5; for nonresidents, \$10.

In addition each student pays \$100 for each school year, \$50 at the opening of each semester. This amount includes the incidental fees of \$25 and \$35 per annum required by law, and fees to meet, in part, the necessary hospital and clinical expenses.

Students will also be required to pay the actual cost of materials and apparatus of every kind consumed, wasted, lost or broken. A stock room is provided where students may purchase any additional material needed, or they may secure the same, if they prefer, in the open market, provided the form and grade of such articles are approved by the instructor in charge.

### REGISTRATION AND ENROLLMENT.

The exacting nature of the work in the Medical School makes it necessary for students to enter their classes promptly. Enrollment should therefore be secured within the first week of each semester. Students may enter later only for good reasons, and the associate dean may limit the amount of work of such students at his discretion.

### EXAMINATIONS.

Examinations will be held for all students during the last days of each course. Final examinations occur on the last days of the semester or half-semester.

Failures must be made good at the earliest opportunity. If not removed before the recurrence of the courses, the work must be taken in class.

Failure in more than a third of the student's work severs his connection with the University. He may be reinstated only by the action of the Dean.

## DEGREES.

Two degrees are open to students in the School of Medicine:

The degree of Doctor of Medicine is granted to those satisfactorily completing the work of the full four-year medical course.

The degrees of Bachelor of Arts and Doctor of Medicine are conferred upon those completing the full six-year course in the College of Liberal Arts and Sciences and the School of Medicine, as laid down in the catalogue of the College.

## AMOUNT OF WORK.

It is not advisable to attempt to carry full work in the Medical School and to engage in outside occupations. If it is necessary for students to earn a portion of their expenses while in school, a longer time will be required to complete the course. Should students for any reason be unable to carry full work, they may, at the discretion of the associate dean, be withdrawn from certain courses.

## PROGRAM OF STUDIES.

Six years' work is required of all students, including the Freshman and Sophomore work in the College. For entrance requirements, and those relating to the prescribed work of the Freshman and Sophomore work, see other pages of this catalogue.

Registration will be secured in the College for the first three years, and during the fourth year in the Medical School. Medical students must be enrolled in the Medical School during all of the last four years. At the end of the fourth year, on completion of all requirements of the College, the College will grant the degree of Bachelor of Arts. Upon the completion of this work the student will enroll in the courses of the third and fourth years of the Medical School, and will receive the degree of Doctor of Medicine when satisfactory examinations are taken.

## FOUR-YEAR PROGRAM.

In order to comply with various state laws in regard to the issuance of the license for the practice of medicine, all students granted the medical degree must be registered as medical students for four full years.

## REQUIREMENTS FOR GRADUATION.

To be in regular course for graduation each student must enroll for eighteen hours of work per week. Before any student may be recommended for graduation he must have had a total of 4000 hours of work in a school of medicine, of which the last 1000 hours must have been in this School.

## LABORATORIES.

For the work of the first two years of the medical course at Lawrence the entire scientific equipment of the University is available. The University already possessed, when the Medical



School was established, well-equipped laboratories for chemistry, pharmacy, bacteriology and histology. In physiology and anatomy laboratories were provided, and the equipment increased. The greater part of the work of the first two years is of a purely scientific character, and most of the student's time is spent in laboratories. Most of the instruction is given by men who devote themselves entirely to teaching and are not interested in any other occupation.

Chemistry is given in the Chemistry Building, which is a well-ventilated, new and commodious building, and offers apparatus and facilities for work in the regular courses. Facilities for graduate work are also provided. The laboratories for pharmacology and toxicology are in the same building. Laboratories for bacteriology, histology, embryology and pathology are in Snow Hall. The laboratories of physiology occupy the main floor of Medical Hall, and laboratories for gross anatomy are in the basement of the Museum of Natural History.

The Laboratory Building at Rosedale is of brick and stone, 50 by 100 feet, three stories in height. It contains a teaching laboratory, private laboratories for instructors, the necessary lecture rooms, morgue and specimen rooms, animal rooms, business offices, and the library. The museum contains more than one thousand specimens, preserved in Kaiserling's fluid, and well catalogued and described. A sufficient number of microscopes are provided so that each student has his own equipment.

#### LIBRARY AT ROSEDALE.

The library has recently been given more commodious quarters, a librarian placed in charge, and the appropriation for this important feature of a Medical School has been increased. The files of periodicals have been carefully selected, with a view to training the student to use the best in current medical literature. There is a collection of reprints and dissertations; a number of monographs and textbooks have been added this year.

#### HOSPITAL.

The first portion of the hospital was completed in 1906. This is a brick structure, three stories in height, 130 by 24 feet, with a central wing 30 by 40 feet. In 1911 a new hospital of modern fireproof construction was erected just west of the original building and connected with it by a corridor, making practically one building. This is 46 by 94 feet, four stories in height, and contains accommodations on the upper three floors for fifty patients. The hospital office, visitors' reception room, operating rooms, nurses' rooms, nurses' sitting room and dining room, dining room for the staff, etc., are in this building. There are accommodations for about sixty-five patients. There are ten rooms for private patients. Clinical material is furnished, first, by free patients (maintained by a legislative appropriation) who are sent in from the dispensary by the heads of the departments; second, by county cases which are sent in under the laws passed

by the last legislature, permitting counties to send their charity cases to this hospital for treatment, the counties paying the actual expenses incurred; third, patients who can not afford to pay hospital fees are admitted as clinical patients if they present a letter from their family physician stating that they can not afford to pay for professional services and are worthy of receiving free treatment.

### DISPENSARY.

One-half of the first floor of the new hospital building is used for the dispensary. A drug room is maintained under the direction of the School of Pharmacy, and patients are treated daily, except Sunday, from 1:00 to 3:00 P.M. The attendance of the dispensary is increasing and it gives the student a good opportunity to observe and study ambulant cases. Laboratory facilities are provided close at hand, and thorough work is emphasized.

### INTERNES.

Three internes are appointed out of every graduating class to serve in the hospital. The work is arranged so as to give these men experience of the greatest possible value. The internes are selected by the Administrative Committee, from the five applicants who have made the highest average in their work during the last two years.

### INSTRUCTION GIVEN ELSEWHERE.

Instruction is also given at St. Margaret's Hospital of Kansas City, Kan., by permission of the Sisters who control this institution. Its capacity is three hundred beds. Third- and fourth-year students spend two mornings a week in this hospital. The school is allowed similar privileges by the authorities of Mercy Hospital, where instruction in pediatrics is given.

DAILY SCHEDULE FOR THE FIRST YEAR—FIRST SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 12:15	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.
1:30 to 2:30	Organic Chemistry. Asso. Prof. Dains.	Organic Chemistry. Laboratory. Asso. Prof. Dains.	Organic Chemistry. Asso. Prof. Dains.	Organic Chemistry. Laboratory. Asso. Prof. Dains.	Organic Chemistry. Asso. Prof. Dains.
2:30 to 3:30					
3:30 to 5:30	Histology. Asst. Prof. Baum- gartner.	Histology. Asst. Prof. Baum- gartner.	Histology. Asst. Prof. Baum- gartner.	Histology. Asst. Prof. Baum- gartner.	Histology. Asst. Prof. Baum- gartner.

## DAILY SCHEDULE FOR THE FIRST YEAR—SECOND SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 12:15.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.	Anatomy. Doctors Curran and Smith.
1:30 to 3:30	Physiological Chemistry. Asst. Prof. Emerson.	Physiological Chemistry. Asst. Prof. Emerson.	Physiological Chemistry. Asst. Prof. Emerson.	Physiological Chemistry. Asst. Prof. Emerson.	Physiological Chemistry. Asst. Prof. Emerson.
3:30 to 4:30		Embryology. Asst. Prof. Heuser.		Embryology. Asst. Prof. Heuser.	
4:30 to 5:30					



DAILY SCHEDULE FOR THE SECOND YEAR—FIRST SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 12:15	Physiology. Asst. Prof. Scott and Mr. Gruber.	Physiology. Asst. Prof. Scott and Mr. Gruber.	Physiology. Asst. Prof. Scott and Mr. Gruber.	Physiology. Asst. Prof. Scott and Mr. Gruber.	Physiology. Asst. Prof. Scott and Mr. Gruber.
1:30 to 3:30	Bacteriology. Professor Boughton.	Bacteriology. Professor Boughton.	Bacteriology. Professor Boughton.	Bacteriology. Professor Boughton.	Bacteriology. Professor Boughton.
3:30 to 5:00	* Pathological Physiology. Doctor Chambers.  Introductory Pharmacology. Professor Havenhill.	Pathological Physiology. Doctor Chambers.  Introductory Pharmacology. Lecture. Professor Havenhill.		Pathological Physiology. Doctor Chambers.  Introductory Pharmacology. Laboratory. Professor Havenhill.	Pathological Physiology. Doctor Chambers.  Introductory Pharmacology. Professor Havenhill.
4:30 to 5:30					

\* Pathological physiology for the first half of the semester and introductory pharmacology for the second half.

## DAILY SCHEDULE FOR THE SECOND YEAR—SECOND SEMESTER.

Hour.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8 to 11:15	* Physiology. Asst. Prof. Scott and Mr. Gruber. Anatomy. Doctor Curran.	Physiology. Asst. Prof. Scott and Mr. Gruber. Anatomy. Doctor Curran.	Physiology. Asst. Prof. Scott and Mr. Gruber. Anatomy. Doctor Curran.	Physiology. Asst. Prof. Scott and Mr. Gruber. Anatomy. Doctor Curran.	Physiology. Asst. Prof. Scott and Mr. Gruber. Anatomy. Doctor Curran.
11:15 to 12:15	Materia Medica. Prof. Sayre.	Materia Medica. Prof. Sayre.	Materia Medica. Prof. Sayre.	Materia Medica. Prof. Sayre.	Toxicology. Prof. Bailey.
1:30 to 2:30	Pathology. Prof. Boughton.	Pathology. Prof. Boughton.	Pathology. Prof. Boughton.	Pathology. Prof. Boughton.	Pathology. Prof. Boughton.
3:30 to 4:30	Hygiene. Doctor Chambers. 3:30 to 5:00	Physical Diagnosis. Doctor Naismith.		Physical Diagnosis. Doctor Naismith.	Hygiene. Doctor Chambers. 3:30 to 5:00
4:30 to 5:30		Section A.		Section B.	

\* Physiology for the first six weeks of the term and anatomy for the last ten.

## DESCRIPTION OF COURSES IN SCIENTIFIC DEPARTMENT.

### ANATOMY.

Professor CURRAN.  
Professor McCLUNG.  
Assistant Professor BAUMGARTNER.  
Assistant Professor HEUSER.  
Doctor SMITH.  
Mr. ASCHMAN, Fellow.

The laboratories for gross anatomy and dissecting occupy rooms in the basement of the Museum of Natural History. During the last few years the equipment has been increased and more material has been provided, including dissections, osteological preparations, models, and neurological preparations. A special effort has been made to embalm the dissecting material so as to give absolutely the best result. A fee is charged each student, covering the actual cost of material consumed. Abundant material for the study of osteology is furnished. The student is expected to provide dissecting instruments and two gowns. Histology and embryology are given in laboratories in Snow Hall.

1.—DESCRIPTIVE ANATOMY. Seven hours, first semester, daily, 8 to 12:15. The first two weeks are occupied by a study of osteology. The vertebral column is considered from a morphological standpoint, and the various bones studied by means of drawing and modeling. The remainder of the semester is devoted to dissection of the head and neck, and study of the various preparations and models illustrating these parts. In this course the student is put on his own resources, in order to develop individuality and confidence in himself. Demonstrations to small groups are continually going on during the dissecting hours. Professor Curran, Doctor Smith, and Mr. Aschman.

2.—DESCRIPTIVE ANATOMY. Eight hours, second semester, daily, from 8 to 12:15. During this term, the abdomen and thorax and leg are carefully dissected and studied, and demonstrations go on as in the first semester. This course is simply a continuation of course 1. Professor Curran, Doctor Smith and Mr. Aschman.

3.—THE CENTRAL NERVOUS SYSTEM AND SENSE ORGANS. Four hours, second half of second semester, daily, 8 to 12:15. This is a study of the embryology and the gross and microscopic anatomy of the brain, cord, and sense organs. Particular attention is paid to the fundamental plan of the nervous system and to the tracts and associated nuclei. The function is also studied with special reference to the localization of lesions. Each student is furnished with an abundance of embryological material, a set of mounted sections from selected levels of the cord and brain stem, and sufficient preserved material to make a careful study of the cord and brain. A number of gross dissections are also made by each student. Professor Curran.

4.—**TOPOGRAPHICAL AND SURGICAL ANATOMY.** Four hours, daily, last half of second semester, from 8 to 11:15. This is a study of topographical and surgical anatomy, with a general review of the first year's work. Students will be required to locate deep structures through small openings and give the external markings. Special stress will be placed on relations, anomalies, and their diagnostic and surgical bearing. This course is especially designed to give a vivid practical review of the first year's work and to equip the student for his clinical work for the third year. It must be completed by second-year medical students before full credit can be given for anatomy. Professor Curran and Doctor Smith.

5.—**OPTIONAL WORK FOR ADVANCED STUDENTS.** This work is done individually, and is arranged to suit the needs and the ability of the student. In a large measure, it will consist of a study of cross-sections, special dissections, and preparation of anatomical material. Professor Curran.

6.—**HISTOLOGY, OR MICROSCOPICAL ANATOMY.** Five hours, first semester, daily, 3:30 to 5:30. Microscopical manipulation, the study of normal tissues, and the methods of preparing mounted objects are required in this course. Lectures and laboratory work. Required of first-year medical students. Assistant Professor Baumgartner.

7.—**EMBRYOLOGY.** Two hours, second semester, 3:30 to 5:30. General principles of embryology, with special reference to the needs of students of anatomy and of medicine. Particular stress is laid upon the anatomy of the mammalian embryo and upon the structure and development of the foetal membranes and placenta. Lectures, laboratory work, and quizzes. Assistant Professor Heuser.

## BACTERIOLOGY AND PATHOLOGY.

Professor BOUGHTON.  
Associate Professor TRIMBLE.  
Doctor CHAMBERS.  
Mr. CURL, Scholar.

1.—**BACTERIOLOGY.** Five hours, first semester, 1:30 to 3:30. Lectures, laboratory and recitations. This course is designed to give the student a comprehensive view of bacteriology. The student learns the methods of preparing culture media, the technique of obtaining pure cultures from clinical material, and bacteriological methods of diagnosis. The more common pathogenic organisms are studied with reference to their morphologic, cultural and staining characteristics, their relations to problems of hygiene, sanitation and immunity, and the standard methods of identifying them. Required of second-year medical students. Professor Boughton and Mr. Curl.

2.—**GENERAL PATHOLOGY.** Five hours, second semester, 1:30 to 3:30. Lectures, laboratory and recitation. This course is devoted to the study of pathological processes, as illustrated by gross and microscopic specimens, with considerable emphasis upon pathological technique. A good deal of time is also devoted to



the theory of immunity, with some laboratory work. Required of second-year medical students. Professor Boughton and Mr. Curl.

3.—ADVANCED BACTERIOLOGY AND PATHOLOGY. Two to five hours. Open to advanced students who have had sufficient preparation. Experimental work and original research in all branches of bacteriology, pathology and immunology, arranged to suit the needs of individual students. Professor Boughton.

4.—PATHOLOGICAL PHYSIOLOGY. Two hours, first half of first semester, Monday, Tuesday, Thursday and Friday, 3:30 to 5:00. This is a course of lectures and recitations covering the principles of diagnosis, and placing special emphasis on derangements of function. It strives to make the transition from the study of normal physiology to that of clinical physiology and pathology easy and satisfactory. The course bears the same relation to normal physiology that cellular pathology does to normal anatomy and histology, and is intended to give a rational understanding of the symptoms which are later studied at the bedside. Considerable attention is given to the various compensations, adaptations and regenerations that occur in the individual in the attempt to master disease. Required of second-year medical students. Doctor Chambers.

### CHEMISTRY.

Professor BAILEY.

Professor SAYRE.

Associate Professor DAINS.

Assistant Professor EMERSON.

13.—ORGANIC CHEMISTRY. Lectures, recitations and laboratory, five hours. A general introductory course in organic chemistry, covering the most important classes of organic compounds, with their preparation, properties and uses. First semester, Monday, Wednesday and Friday, 1:30 to 2:30. Laboratory, Tuesday and Thursday, 1:30 to 3:30. Associate Professor Dains and assistants.

10.—PHYSIOLOGICAL AND MEDICAL CHEMISTRY. Five hours, second semester, 1:30 to 3:30. This course is offered to meet the requirements of medical students. Products of physiological interest are separated from animal tissues and studied in detail. Attention is given to the study of carbohydrates, proteins, and the normal and abnormal products of animal life. The second part of the course consists of five weeks of urinalysis, embracing lectures, recitations, and laboratory work. Required of first-year students. Text: Hawk's Physiological Chemistry. Professor Sayre and Assistant Professor Emerson.

4.—ADVANCED WORK IN PHYSIOLOGICAL CHEMISTRY. The advanced study of any special branch of chemical physiology tending toward original work. Open to students having had general, qualitative, quantitative, organic and physiological chemistry. Either or both semesters, by appointment. Professor Sayre and Assistant Professor Emerson.

## PHARMACOLOGY, THERAPEUTICS AND TOXICOLOGY.

Professor SAYRE.  
Professor HAVENHILL.  
Professor BAILEY.  
Assistant Professor EMERSON.

The courses offered in the department are especially designed to meet the requirements of medical students, special emphasis being given to the properties, action and uses of the more important medical agents and poisons.

1.—INTRODUCTORY PHARMACOLOGY. Two hours, second half of first semester, Monday, Tuesday, Thursday and Friday, 3:30 to 5:00. This course embraces the study of weights, measures, processes used in the preparation of medicines, illustrated by exercises in the pharmaceutical laboratory; prescription writing; physical properties and identification of crude drugs. Professor Havenhill.

2.—PHARMACOLOGY AND MATERIA MEDICA. Four hours, second semester, at 11:15. Classification, chemical and physical properties of drugs, therapeutical application, method of prescribing and dispensing, the action of organic and inorganic chemicals and their physiological relationships. Lectures and recitations. Required of second-year students. Must be preceded by course 1. Professor Sayre.

3.—LABORATORY WORK IN PHARMACOLOGY. Investigation of the physiological action of drugs and chemical analysis of active (toxic) principles of drugs. By special appointment with the dean and Department of Physiological Chemistry. The kind and amount of such work to be arranged for. *Note:* The facilities for pharmaceutical investigation of a practical character are made necessary by the intimate connection of the drug laboratory with the State Board of Health. Professor Sayre and Assistant Professor Emerson.

## PHYSIOLOGY.

Professor HYDE.  
Assistant Professor SCOTT.  
Mr. GRUBER.

The physiological department is equipped with modern apparatus for demonstration and experimental work.

The medical laboratory is equipped with specially planned tables, that have gas, water and electrical connections. Each table is supplied with a complete outfit of apparatus, sufficient for investigation and experimentation. Two students are assigned to each table.

The research room is fitted up with the necessary tables, instruments and electrical apparatus for any kind of physiological experiments. There is a department library conveniently situated.

1.—PHYSIOLOGY. Ten hours. Daily, 8 to 12:15, first semester, 8 to 11:15, first six weeks of second semester. Recitations and lectures, with demonstrations, conferences, and journal club,

and laboratory experimental work. Required of second-year medical students. Assistant Professor Scott and Mr. Gruber.

2.—PHYSIOLOGY. Five or ten hours. Graduate course. Experimental physiology and original research. Open to students who have taken not less than a year of anatomy and physiology and have given evidence that they are prepared for it. Professor Hyde.

### PHYSICAL DIAGNOSIS.

Professor NAISMITH.

PHYSICAL DIAGNOSIS. Two hours. Second semester, 3:30 to 5:30, Tuesday and Thursday. A course designed to make the student acquainted with the normal body, its appearance, the sounds produced by the normal workings of the organs and the sounds that are elicited when the parts are subjected to physical manipulation. It deals with the technic of examinations, endeavoring to develop the skill of the examiner in observation by viewing and criticizing the normal body, so as to become familiar with its size, shape and condition and to detect deviations from the normal. It aims to develop the skill of the examiner in the technique of producing sounds in the body, so as to ascertain the size, shape and condition of the contained organs; to note the sounds produced by a change of condition in the organ and to detect the causes that produce abnormal sounds. It gives an opportunity to listen to the sounds produced by the organs of the body, to study the mechanism which produces these sounds, the effect of the disturbance of the normal workings of the organs, and the causes which produce variations from these. The method is by lecture, recitation and laboratory work in the class and the examining room. Professor Naismith.

### HYGIENE.

Doctor CHAMBERS.

HYGIENE.—Two hours, second semester, Monday and Friday, 3:30 to 5. This is a course in hygiene from the viewpoint of the medical practitioner. Besides the usual work in hygiene, there is instruction in making vital statistics, in quarantine regulations, and in fumigation and other modes of disinfection. Committees from the class will investigate and report on water and milk supplies, the care and marketing of meats, fruits, vegetables, etc., and on various systems for heating, ventilating and cleaning. Doctor Chambers.

### MEDICINE.

Professor MURPHY.  
Professor WOLF.  
Associate Professor SCOTT.  
Associate Professor SKOOG.  
Assistant Professor HUNT.  
Instructor BOHAN.  
Instructor CLENDENING.  
Instructor BOGGS.

The work of the department begins in the Sophomore year, when Professor Naismith shows the students the normal and ab-



normal in the development of the students in the University at Lawrence. The theoretical work of the Clinical Department is given by recitations in Osler's Practice of Medicine in the Junior year. The practical work is given in the Bell Memorial Hospital during the Junior year, and in the Bell Memorial and St. Margaret's hospitals during the Senior year. Two exercises for each student (in a section of not more than ten students) are given weekly to the Juniors in physical diagnosis, case history writing, and therapeutics, by Professor Murphy. In the Senior year they visit in sections of four students the bedsides in the hospitals mentioned, and are taught by Professors Murphy (at the Bell Memorial), and Bohan, (at St. Margaret's). Besides this, during the Senior year the class meets weekly for a conference on the reports of members who have studied assigned cases. The clinical microscopy is taught by Associate Professor Trimble, of the Department of Clinical Pathology. Methods of life insurance examination are taught by Professor Porter. Electrotherapeutics is taught by Associate Professor Scott. The work in Pediatrics begins in the second half of the Junior year and continues throughout the Senior year. We have at our disposal the material of a seventy-five-bed children's hospital (Mercy), which makes it possible to show practically all the noncontagious diseases, together with large numbers of infants for feeding.

1.—DISEASES OF METABOLISM. One hour, first semester, Wednesday, at 10. Required of third-year students. Recitations. Professor Murphy.

2.—DISEASES OF THE GASTRO-INTESTINAL TRACT. Two hours, second semester, at 10. Recitations. Required of third-year students. Professor Wolf.

3.—INFECTIVE DISEASES. One hour, first semester, Friday, at 10. Recitations. Required of third-year students. Associate Professor Lutz.

4.—CLINICAL INSTRUCTION in groups, with special reference to diagnosis. Two hours, first semester. Two periods weekly. Required of third-year students. The divisions are uniform with those in other departments, and do not exceed ten students in each group. Professor Murphy.

5.—CLINICAL INSTRUCTION. Two hours, second semester. Required of third-year students. Professor Murphy.

6.—WARD CLASSES. Attendance restricted to fourth-year students and to four students in a group, at St. Margaret's Hospital. Credit, one hour for each semester-day. Professor Skoog and Instructor Bohan.

7.—DIETETICS. One hour, first semester, Friday, at 9. Lectures. Required of Seniors. Professor Wolf.

8.—THERAPEUTICS. Continuation of 18. One hour, second semester, Wednesday, at 9. Required of third-year students. Instructor Boggs.

9.—ELECTROTHERAPEUTICS. Lectures. One hour, second semester, Tuesday, at 10. Required of fourth-year students. Associate Professor Scott.



10.—MEDICINE. A recitation course based on Osler's Text-book of Medicine. Saturday, at 11. Required of Juniors. Instructor Clendening.

11.—MEDICINE. A continuation of course 10. Tuesdays and Fridays, at 3. Required of Juniors. Instructor Clendening.

12.—ELEMENTARY PEDIATRICS. Two hours a week, on Mondays, from 1 to 3. The Junior students are taken to the wards and shown children from birth to fifteen years of age, and are taught to see, feel and hear all that may be normal or abnormal about a given case. At the same time a quiz is carried on, bringing out the principal points. This course is strictly elementary in its purpose. Facility at making physical examinations of children of all ages is emphasized. No effort is made to give instruction in methods of treatment. Assistant Professor Hunt.

13.—CLINICAL PEDIATRICS. Throughout the Senior year, in sections on Wednesday and Friday from 1 to 3, and the entire class on Saturdays at the same hours. Cases are assigned on section days for examination and study, to be reported upon the following Saturday when a class conference and clinical quiz is held. Differential diagnosis and treatment are especially emphasized; and the methods of infant feeding are demonstrated. Assistant Professor Hunt.

14.—CLINICAL NEUROLOGY. Bedside demonstrations before sections of the Senior class. Monday and Wednesday, 8 to 9 A. M. At St. Margaret's Hospital. Dispensary clinics. Rosedale, 1 to 2 P. M. Associate Professor Skoog.

### SURGERY.

Professor SUDLER.

Professor BLOCK.

Professor PERKINS.

Clinical Professor GRAY.

Associate Professor SUTTON.

Associate Professor HERTZLER.

Assistant Professor ROBERTS.

Assistant Professor HAYDEN.

Instructor NESSELRODE.

Instructor FRANCISCO.

Instruction in the principles of surgery is given by means of lectures, recitations and assigned subjects. Practical instruction is given in the dispensary, in the Bell Memorial Hospital and in St. Margaret's Hospital.

1.—GENERAL SURGERY. Two hours, first semester, Monday and Thursday, at 11. Required of third-year students. An introduction to the principles underlying surgical procedures. Professor Sudler.

2.—GENERAL SURGERY. One hour, second semester, Monday, at 11. Required of third-year students. A recitation course. Professor Sudler.

3.—REGIONAL SURGERY. One hour, second semester, Tuesday, at 9. Required of third-year students. Assistant Professor Hayden.

4.—GENITO-URINARY SURGERY. Lectures. One hour, both semesters, Friday, at 9. Required of third-year students. Professor Block.

5.—CLINICAL SURGERY. One hour, both semesters. Required of third-year students the first semester, and of fourth-year students the second semester. Wednesday, at 9, at the Bell Memorial Hospital. Professor Sudler.

6.—CLINICAL SURGERY. One hour, both semesters, Thursday, at 9. Required of fourth-year students the first term and of third-year students the second term. Professor Hertzler.

7.—CLINICAL SURGERY. One hour, both semesters, Monday and Thursday, at 1, at the dispensary. Required of third-year students. Associate Professor Sutton.

8.—SURGERY. One hour, second semester, Thursday, at 10. Required of fourth-year students. Papers on assigned topics. Professor Sudler.

9.—SURGICAL DIAGNOSIS. Lectures and demonstrations. One hour, both semesters, Friday, at 8. Required of fourth-year students. Professor Perkins.

10.—WARD CLASSES at St. Margaret's and the Bell Memorial hospitals. Credit, one hour for each day. One hour each semester required of fourth-year students. Clinical Professor Gray and Associate Professor Sutton.

11.—RECTAL SURGERY. Lectures and demonstrations. One hour, first semester, Friday, at 9. Required of fourth-year students. Assistant Professor Roberts.

12.—FRACTURES AND DISLOCATIONS. Lectures and recitations. Two hours, first semester, Tuesday and Thursday, at 9. Required of third-year students. Associate Professor Sutton.

13.—CLINICAL SURGERY. Instruction in wards at Bell Memorial Hospital. Two hours, during one-half of the second semester, Saturday, 9 to 11. Credit, one-half hour. Associate Professor Sutton.

## OBSTETRICS.

Professor GUFFEY.  
Clinical Professor NASON.  
Instructor IRLAND.

This department is equipped with models, drawings, manikins and specimens sufficient to illustrate its instruction. One hundred and fifty hours' of work are required, distributed over lectures, demonstrations, clinics, dispensary and laboratory work, and the conduct of twelve births. Of the one hundred and fifty hours, ninety are used in didactic teaching, thirty-six in clinics, and twenty-four in dispensary and laboratory work.

After the preliminary work of the first term of the Junior year students are admitted to the dispensary. During the Senior year they are shown cases in the lying-in ward of the Bell Memorial and Bethany hospitals. Each student is made responsible for at least two cases in hospital service. He must attend and report twelve cases aside from those seen in the hospital. The

report of each case must be complete and accurate. In so vital a matter as the conduct of births the University of Kansas believes that accuracy and success can be obtained only by rigidity and fullness of requirement in the work of each student. The following courses are required:

#### JUNIOR YEAR.

1.—PHYSIOLOGICAL OBSTETRICS. Two hours, first term, Tuesday and Friday, at 11. This course embraces the physiology and management of pregnancy, labor, the puerperium, and of the new-born. Instructor Irland.

2.—PATHOLOGICAL OBSTETRICS. Two hours, second term, Monday and Thursday, at 10. This course embraces the pathology of pregnancy, labor, the puerperium, and of the new-born, also the treatment of the abnormal conditions. Professor Guffey.

3.—LABORATORY AND DISPENSARY WORK. Each student is required to spend six dispensary periods in the laboratory or dispensary during the second term of his Junior year. Professor Guffey and Instructor Irland.

#### SENIOR YEAR.

4.—SURGICAL OBSTETRICS. One hour for ten weeks, first term, Friday, at 10. This course includes a thorough discussion and demonstration of the operations of obstetric surgery. Special attention is given to indication and technique. Professor Guffey.

5.—MANIKIN DEMONSTRATIONS. One hour for eight weeks, first term, Friday, at 10. This course is a direct continuation of the preceding course on surgical obstetrics. It includes demonstration by the instructor with the manikin and fetus and actual work on the same by the students under his guidance. In sections of not more than ten. Instructor Irland.

6.—CLINICAL OBSTETRICS. One hour, both terms, Wednesday, 9 to 12. This course brings before the students the various conditions demanding operative interference. At least one student assists with the operation and is required to make a full record of the operative technique and the pathological findings. It is a companion course to the one in clinical gynecology. Professor Guffey.

7.—CLINICAL CONFERENCE. One hour, both terms, Tuesday, 3 to 4. This course comprises a discussion of actual conditions met with from time to time in dispensary, hospital and out-patient service. It is designed to constitute a careful and exhaustive consideration of the cases which will be operated upon on the succeeding morning. In addition it will include reports and discussions of case histories and of all abnormal conditions met with in the out-patient department. Professor Guffey.

8.—LABORATORY AND DISPENSARY. Eighteen dispensary periods are spent by each student in the laboratory or dispensary. In this way the student gets practical experience in the diagnosis and treatment of the various morbid conditions. A com-

panion course is offered in gynecology. Professor Guffey and Instructor Ireland.

9.—PRACTICAL WORK. Each student is required to follow daily and in detail the progress of two hospital cases. In addition, the management of twelve births on the out-patient service, together with a detailed report of each, is required before graduation. Professor Guffey and Instructor Ireland.

### GYNECOLOGY.

Professor GUFFEY.  
Adjunct Professor LANGWORTHY.  
Instructor IRLAND.

The work required in this department is thirty-six hours of didactic instruction, thirty-six hours of clinics in the hospital, and twenty-four hours of dispensary clinics. The student is introduced to the subject by thirty-six hours of work devoted to lectures, quizzes, and demonstrations of pathological material illustrating the subjects discussed. This is followed in the second term of the Junior year and both terms of the Senior year by clinics and hospital work. In giving instruction in this subject a special effort is made to have the students do as much of the work as possible, under proper guidance and supervision. The history of the patient, the description of the operation, or treatment, the pathology, as well as the study of the case as long as it is in the hospital, is assigned to individual students in rotation.

### JUNIOR YEAR.

1.—DISEASES OF THE FEMALE GENITAL TRACT. Two hours, first term, Monday and Thursday, at 10. Lectures, quizzes, and demonstrations of illustrative pathological material. Professor Guffey.

2.—LABORATORY AND DISPENSARY WORK. Each student is required to spend six dispensary periods in the laboratory or dispensary during the second term of his Junior year. Professor Guffey and Instructor Ireland.

### SENIOR YEAR.

3.—CLINICAL GYNECOLOGY. One hour, both terms, Wednesday, 9 to 12. This course brings before the students the various conditions demanding operative interference. At least one student assists with the operation and is required to make a full record of the operative technique and the pathological findings. Professor Guffey.

4.—CLINICAL CONFERENCE. One hour, both terms, Tuesday, 3 to 4. This course comprises a discussion of actual conditions met with from time to time in dispensary, hospital and out-patient service. It is designed to constitute a careful and exhaustive consideration of the cases which will be operated upon on the succeeding morning. In addition it will include reports and discussions of case histories and of all abnormal conditions met with in the out-patient department. Professor Guffey.



5.—LABORATORY AND DISPENSARY. Eighteen dispensary periods are spent by each student in the laboratory or dispensary. In this way the student gets practical experience in the diagnosis and treatment of the various morbid conditions. Professor Guffey and Instructor Irland.

### CLINICAL PATHOLOGY.

Professor BARBER.\*  
Associate Professor TRIMBLE.  
Associate Professor HERTZLER.  
Associate Professor SKOOG.

The course in pathology extends through the Junior and Senior years. The work will consist of four laboratory periods each week during both terms. During the first semester there will be given a course in hematology, two periods each week, consisting of recitations and laboratory work on the blood, hematological technique, changes in the blood incident to various diseases, diseases of the blood, and blood parasites. In the second semester, Junior year, will be given special pathology two periods each week, which will consist of recitations and laboratory work in special pathological histology. During this semester will also be given a course in clinical microscopy, two periods each week, consisting of work in urine and gastric analysis, examinations of feces, discharges, exudates and transudates, etc.

The first semester Senior work, two periods each week, will consist of a laboratory course in medical pathology and *post-mortem* pathology. Each student will be required to report *in extenso* at least two autopsies which he has seen or has performed. In the second semester this work will become more strictly gross *post-mortem* pathology. Second semester work will consist of a course in surgical pathology, two laboratory periods each week.

1.—HEMATOLOGY. First semester, three hours, Tuesday and Wednesday, 1 to 4. Required of Juniors. Associate Professor Trimble.

2.—SPECIAL PATHOLOGY. Second semester, three hours, Monday and Wednesday, 1 to 4. Required of Juniors. Associate Professor Trimble.

3.—CLINICAL MICROSCOPY. Second semester, three hours, Tuesday and Thursday, 1 to 4. Required of Juniors. Associate Professor Trimble.

4.—POST-MORTEM PATHOLOGY. First semester, three hours, Monday and Wednesday, 1 to 4. Required of Seniors. Associate Professor Trimble.

5.—SURGICAL PATHOLOGY. Second semester, two hours, Monday and Wednesday, 1 to 3. Required of Seniors. Associate Professor Hertzler.

6.—POST-MORTEM PATHOLOGY. Clinics and demonstrations. Second semester, three hours. Required of Seniors. Associate Professor Trimble.

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\* Absent on leave.

7.—NEUROPATHOLOGY. First semester, Wednesday, 2 to 4. Senior class. In this course is given a review of the anatomy, histology and physiology, especially from the standpoint of the practical and localization. The laboratory and lantern slides are used. Associate Professor Skoog.

### DERMATOLOGY.

(Skin and Venereal Diseases.)

Associate Professor McBRIDE.  
Associate Professor SUTTON.

Three semesters (or a total of 54 "hours") are given to the special study of skin lesions. The first course is given during the third year, in order that the student may have the succeeding semesters in which to digest and assimilate the information thus given in rather intensive form. The subject of syphilis is included in the instruction afforded by the department. The following are the required courses:

1.—INTRODUCTORY COURSE. One hour. Lectures and recitations. The anatomy and physiology of the skin, together with the symptomatology, pathology and clinical manifestations of the commoner skin diseases. Required of Juniors, second semester, Saturday, at 9. Associate Professor McBride.

2.—CLINICAL DERMATOLOGY. One hour. Lectures and demonstrations of the various skin diseases, at the Bell Memorial and St. Margaret's hospitals twice a week, Thursday and Saturday forenoons. Both terms, Senior year. Associate Professors McBride and Sutton.

### PSYCHIATRY.

Professor GLASSCOCK.  
Professor UHLS.  
Lecturer KUHN.  
Associate Professor SKOOG.

The work of this department is illustrated by clinics at the Grandview Sanitarium, as well as by clinics in the hospitals to which the students are regularly attached.

1.—PSYCHIATRY. Two hours, first semester. Required of Seniors. Tuesday and Friday, at 11. Lectures covering the following subjects are given: History of insanity, forms of insanity, care and treatment of insanity in hospitals, care and treatment of insanity in general practice, state care of insane, and the relation of heredity to insanity. Professor Glasscock and Professor Uhls.

2.—NEUROLOGICAL CLINICS. Occasional clinics are shown by Professor Glasscock at the Grandview Sanitarium. The regular demonstration of the neurological material lying in St. Margaret's Hospital is given by Associate Professor Skoog to the sections in internal medicine once a week. Credit, one-half hour.

## NEUROLOGY.

Professor GODDARD.  
Professor HANAWAIT.  
Adjunct Professor KUHN.  
Associate Professor SKOOG.

The work of this department is illustrated by clinics at St. Margaret's and the Bell Memorial hospitals.

1.—(a) DRUG HABITS; (b) SOCIOLOGIC AND ECONOMIC ASPECTS OF PSYCHIATRY. One hour, second semester, Thursday, at 11. Elective lectures. Only those who have had some instruction in psychiatry are admitted to this course. Adjunct Professor Kuhn.

2.—ORGANIC DISEASES OF THE NERVOUS SYSTEM. Two hours, second semester, Monday and Friday, at 10. Lectures. Required of third-year students. Professor Goddard and Professor Hanawalt.

## RHINOLARYNGOLOGY AND OTOTOLOGY.

Professor SAWTELL.  
Associate Professor EMLEY.  
Assistant HALL.

The work of this department is begun during the third year, in the second semester, and is continued through the fourth year. Both the didactic and the clinical work are given in the dispensaries and hospitals.

1.—DIDACTIC COURSE. One hour, second semester. For this course students are taught in groups at the Bell Hospital. Beginning with a review of the anatomy and physiology of the parts, a drill in the methods of examination is given, illustrated by demonstrations on patients. Required of Juniors. Professor Sawtell.

2.—CLINICAL COURSE. One hour, first semester. Here also the students are taught in groups. The subject matter of this course consists of a study of the deformities and diseases of the nose and throat with the treatment for the same. Required of Seniors. Professor Sawtell.

3.—OTOLOGY. One hour, first semester. A short review of the physiology and anatomy of the ear with microscopical specimens and clinical cases for demonstration. Lectures on the pathological lesions of the ear. Required of Seniors. Associate Professor Emley.

## OPHTHALMOLOGY.

Professor MCALESTER.  
Clinical Professor LIDIKAY.  
Clinical Professor MAY.

1.—PHYSIOLOGICAL OPTICS. Instruction is given second-year students in physiological optics; vision tests, color tests, the taking of the field of vision, etc. Optical boxes, artificial eyes, ophthalmoscopes and suitable apparatus are provided for all physiological work and study. The course consists of laboratory

work and demonstrations under the professor of physiology in the regular course in physiology.

2.—LECTURES, DEMONSTRATIONS AND CLINICAL LECTURES. Two hours, second semester. Required of Junior students. The course covers the methods of examining the patient, functional testing, diseases and injuries, medical and surgical ophthalmology, and the relation of the eye to general diseases. Professor McAlester.

3.—PRACTICAL WORK. Clinics are given in St. Margaret's and Bell Memorial hospitals. The students are divided into small sections and serve in the dispensary. Each individual has the opportunity of closely inspecting the patients suffering from external diseases of the eye, of making the commoner applications utilized in the treatment, of assisting in the operating room, of studying refractive errors, functional testing, etc. One hour, both semesters. Required of Seniors. Professor McAlester and Clinical Professors Lidikay and May.

#### MEDICAL ECONOMICS.

Professor W. L. BURDICK.  
Professor DAVID R. PORTER.  
Dr. CLAY E. COBURN.

This department of the Medical School gives instruction to the fourth-year students in the rights and privileges of the physician, and in matters relating to expert testimony, malpractice, ethics, medical organization and life insurance.

One hour a week during the Senior year is devoted to the work of introducing to the student the standards and relations of practice. As indicated by the above list, the most successful men from the different parts of Kansas appear before the Seniors to impress upon them the value of right ideals and high standards.

1.—MEDICAL JURISPRUDENCE. One hour, second semester, Saturday, at 10. Lectures. Required of fourth-year students. Professor Burdick.

2.—MEDICAL ECONOMICS. One-half hour, first semester, Wednesday, at 3. Lectures. Required of fourth-year students. Special lecturers.

3.—LIFE INSURANCE. One-half hour, first semester, Wednesday, at 3. Lectures and practical exercises. Required of fourth-year students. Professor Porter.



## TRAINING SCHOOL FOR NURSES.

### FACULTY.

FRANK STRONG, PH. D., President.  
S. J. CRUMBINE, M. D., Dean School of Medicine.  
M. T. SUDLER, M. D., Associate Dean, School of Medicine.  
LESTELLA E. BECHTEL, R. N., Superintendent of Bell Memorial Hospital.  
ELEANOR C. CAMPBELL, R. N., Director of Nurses.  
A. W. MCALESTER, A. B., M. D., Lecturer on Ophthalmology.  
WILLIAM KIRK TRIMBLE, M. D., Lecturer on Pathology.  
OSCAR M. LONGENECKER, M. D., Lecturer on Materia Medica.  
WALTER S. SUTTON, A. B., M. D., Lecturer on Surgery.  
D. O. SMITH, A. B., Instructor in Medicine and Obstetrics.  
J. S. MYERS, A. B., Instructor in Anatomy and Physiology.

This school was established in July, 1906, coincident with the opening of the Bell Memorial Hospital. It is a department of the School of Medicine of the University of Kansas, and subject to the same governing bodies.

### EQUIPMENT.

The present hospital building contains sixty-five beds. The hospital receives all classes of patients except those suffering from dangerous contagious diseases. It therefore shows a great variety of work. Moreover, since it is a teaching hospital, the character of the work shown is more instructive than that shown ordinarily in private hospitals.

The close proximity of the laboratory, library, and other equipment of the School of Medicine affords great advantage in the way of medical information.

### ADMISSION.

Women of good character between the ages of twenty and thirty are eligible for admission. Those with a high-school education are given preference. Those who are accepted are accepted with the understanding that they must spend a probationary period of three months in the school, during which time they will receive board, laundry and lodging, but no other compensation, and that they agree to remain in the school, unless dismissed, the full term of three years.

The didactic instruction begins October 1 and ends June 1 of each year, but students are admitted at any time when there is a vacancy.

Any young woman who wishes to enter the school must make formal application (on blanks provided for that purpose) to the superintendent of the Bell Memorial Hospital, Rosedale. With this application should be sent letters showing what educational advantages she has enjoyed, testifying to her good moral character, and to her good health. These letters should preferably be from her instructor, her pastor and her medical attendant.

## ADVANCED STANDING.

Candidates for advanced standing must satisfy the requirements for admission and also show that they have had the work already done by the class to which they wish admission. There will be required of them, as of beginners, a probationary period, and they will be required to pass an examination on the work for which they seek credit.

## COURSE OF STUDY.

The course is for three years of at least forty-eight weeks each. (It is usual to grant the members of the first- and second-year classes a vacation of three weeks each year, and of the third-year class four weeks.)

The instruction consists of two parts—the practical and the theoretical. The practical work consists of sixty hours' work each week. The theoretical instruction requires four hours of lectures or recitations each week, together with the necessary laboratory work in dietetics and urinary analysis. This theoretical instruction includes the necessary work in anatomy, physiology, hygiene, medicine, pediatrics, obstetrics, etc.

## PROMOTION.

Students are advanced from one class to another upon the obtaining of satisfactory grades in their practical work and upon their passing satisfactory examinations in their theoretical work. Reports on the practical work are made monthly and those on the theoretical work semiannually.

## GRADUATION.

At the close of a successful course of three years the students are granted a diploma under the seal of the University of Kansas. Before, however, they receive such a diploma, they must make up lost time and demerits charged against them during the course.

## EXPENSES.

Each nurse must furnish her own uniform, books and instruments.\* To cover such professional expenses each member of the training school is allowed \$7 a month. From this compensation is deducted, of course, the cost of material unnecessarily broken or lost. Since the board, lodging and necessary laundry work are furnished free, the pupil nurse secures her training at little or no expenditure of money.

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\* These instruments consist of 1 hypodermic syringe (all metal), 1 bandage scissors, 1 small scissors, 1 grooved director, 1 clinical thermometer, 1 probe, 1 thumb forceps.

## VIII. *The Summer Session.*

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### THE FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM HERBERT CARRUTH, PH. D., Vice President.

ARTHUR TAPPAN WALKER, PH. D., Director.

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#### *Instructors from other Institutions.*

THADDEUS LINCOLN BOLTON, PH. D., Arizona State Normal Training School at Tempe.

FREDERICK AUGUSTUS BRAUN, PH. D., Instructor in Modern Languages, Princeton University.

IRA D. CARDIFF, PH. D., Professor of Botany, Washburn College.

CHARLES OSCAR HARDY, A. B., Professor of History, Ottawa University.

DUNCAN LENDRUM MCEACHRON, LITT. D., Professor of English Language, Washburn College.

FRANK JUSTUS MILLER, PH. D., LL. D., Examiner for Secondary Schools, and Professor of Latin, The University of Chicago.

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#### *Instructors from the University of Kansas.*

JAMES WOODS GREEN, A. M., Professor of Law.

CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.

EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.

WILLIAM CHASE STEVENS, M. S., 1893, Professor of Botany.

ARVIN SOLOMON OLIN, A. B., A. M., Professor of Education.

WILLIAM LIVESEY BURDICK, PH. D., LL. B., Professor of Law.

CHARLES EDWARD HUBACH (Graduate of the New England Conservatory of Music; Sbriglia, Paris), Professor of Voice.

IDA HENRIETTA HYDE, PH. D., Professor of Physiology.

JAMES NAISMITH, M. D., Professor of Physical Education.

SAMUEL JOHN HUNTER, A. M., Professor of Entomology.

CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.

FREDERICK EDWARD KESTER, PH. D., Professor of Physics.

CHARLES HUGHES JOHNSTON, PH. D., Professor of Education, and Dean of the School of Education.

EDNA D. DAY, PH. D., Professor of Home Economics.

MERLE THORPE, A. B., Professor of Journalism.

HAMILTON PERKINS CADY, PH. D., Professor of Chemistry.

RAPHAEL DORMAN O'LEARY, A. B., Associate Professor of Rhetoric.

HANNAH OLIVER, A. M., Associate Professor of Latin.

ELMER FRANKLIN ENGEL, A. M., Associate Professor of German.

CHARLES HAMILTON ASHTON, PH. D., Associate Professor of Mathematics.

HENRY WILBUR HUMBLE, LL. B., A. M., Associate Professor of Law.

CLARENCE ADDISON DYKSTRA, A. B., Associate Professor of History.

ARTHUR JEROME BOYNTON, A. M., Associate Professor of Economics.

FRANK BURNETT DAINS, PH. D., Associate Professor of Chemistry.

AUGUSTUS WILLIAM TRETTIEN, B. L., PH. D., Associate Professor of Education.

WILLIAM OLIVER HAMILTON, A. B., Associate Professor of Physical Education.

WILLIAM KIRK TRIMBLE, M. D., Associate Professor of Clinical Pathology.

FRANK EMERSON WARD, Superintendent of Fowler Shops and Shop Instruction.

FRANK EVERETT JONES, Assistant Professor of Carpentry and Pattern Making.

CLARENCE CORY CRAWFORD, PH. D., Assistant Professor of European History.

HENRY LOUIS JACKSON, B. S., Assistant Professor of Chemistry, in Charge of Foods.

JAMES EDWARD TODD, A. M., Assistant Professor of Geology and Mineralogy.

JAMES ANDREW CAMPBELL, A. M., Assistant Professor of German.

ALFRED HIGGINS SLUSS, B. S. in Mech. Eng., Assistant Professor of Mechanical Engineering.

MAUDE BEATRICE COOKE, Assistant Professor of Piano.

HOMER WALKER JOSSELYN, A. M., Assistant Professor of Education.

ULYSSES GRANT MITCHELL, PH. D., Assistant Professor of Mathematics.

MARION BALLANTYNE WHITE, PH. D., Assistant Professor of Mathematics.

LULU GARDNER, A. B., Assistant Professor of Rhetoric.

HERMAN CAMP ALLEN, A. M., Assistant Professor of Chemistry.

GERHARD ADAM GESELL, A. B., Assistant Professor of Public Speaking.

VICTOR EMANUEL HELLEBERG, A. B., LL. B., Assistant Professor of Sociology.



GEORGE ELLSWORTH PUTNAM, B. LITT., Assistant Professor of Economics.

FREDERICK AUGUSTUS GRANT COWPER, A. M., Assistant Professor of Romance Languages.

MAY GARDNER, A. B., Instructor in French.

THEODORE TOWNSEND SMITH, A. M., Instructor in Physics.

AMIDA STANTON, A. B., Instructor in Romance Languages.

CLARENCE ADELBERT NASH, A. M., Instructor in Chemistry.

ANNA LOUISE SWEENEY, MUS. B., Instructor in Piano.

LOUISE WIEDEMANN, MUS. B., Instructor in Piano.

LARRY M. PEACE, A. M., Preparator and Demonstrator in the Botanical Laboratory.

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## PURPOSES OF THE SUMMER SESSION.

In accordance with a general desire to increase the usefulness of the University and bring its resources nearer to the people of the state, the Summer Session was established to meet the demands of the following classes:

1. *City and county superintendents, principals, and teachers*, especially those having work of high-school grade, to enable them to review their work, to become familiar with the latest and best methods, and thus prepare to do their own work better. Every department of the University in which entrance credits are accepted offers one or more courses intended to assist high-school teachers of that subject. If teachers do not find such courses as they need, the University will be grateful for suggestions.

2. *Instructors in other colleges* who may wish the opportunity of further study, of observing the work in their subject as pursued at the University of Kansas, and of using the laboratories and library of the University.

3. *Students preparing to enter the University*, to enable them to complete their preparation. No special classes are conducted for such students, but entrance credits may be secured in botany, chemistry, French, German, or zoölogy.

4. *University students*, whether already matriculated or coming for the first time into membership in the University, to enable them to correct irregularities in their standing or to attain standing in the University. Almost all the courses are open to such students.

5. *Graduate students*, especially such as are prevented by regular employment from attending the University during other sessions. No course is open for graduate credit unless its description so states. Attention is invited to the provision by which such an amount of *in absentia* work is permitted that the degree of Master of Arts may be secured by residence in three Summer Sessions.

6. *Law students* who desire to reduce the time of their course from three years to two.

## GENERAL INFORMATION.

### LENGTH OF COURSES.

Most of the courses run for six weeks, from June 6 to July 17. But in a few departments three-weeks courses are given after the close of the six-weeks session. These courses run from July 18 to August 7.

### FEES.

The Summer Session fee for residents of Kansas is ten dollars, for nonresidents fifteen dollars. This fee covers admission to all courses except those in music, and the medical courses which are given at Rosedale. The fee is the same whether one enters for three, six, or nine weeks.

### AMOUNT OF CREDIT.

The normal amount of credit to be obtained in the six-weeks session is five hours; the maximum is six hours. *Under no circumstances will registration for more than six hours' credit be permitted in this session.* The amount of credit given for each course is indicated in the statement of that course. As there are no one-hour courses, a student may enroll in no more than

One five-hour course, or

One three-hour and one two-hour course, or

Two three-hour courses, or

Three two-hour courses.

The maximum amount of credit to be obtained in the three-weeks session is three hours. Students who avail themselves of both sessions may thus receive a maximum of nine hours' credit for their nine weeks' work—just half the maximum credit allowed for the eighteen weeks of the regular sessions.

### REGISTRATION.

Work begins promptly at the scheduled hours on Thursday, June 6. Classes meet again not only on Friday, June 7, but on Saturday, June 8, though on no other Saturday of the session. Students are urged to be present on the opening day. Registration for full credit is permitted up to the night of Monday, June 10, for the benefit of those unavoidably detained; but there is a distinct loss to the student if he enters so late. After June 10 he will not be registered for full credit.

### CHARACTER OF COURSES.

The courses offered are strictly of university grade, and are selected largely with reference to the needs of secondary teachers. No review courses in subjects taught in elementary schools are offered; and the only secondary subjects are such as are common to the high school and the College, *e. g.*, elementary

German. The admission requirements which are in force during the regular session are not maintained in the summer, because it is recognized that maturity may compensate for the lack of a high-school training. But the summer classes presuppose a high-school training and should not generally be taken with less preparation. In fact, most of them require more preparation, though many are intended for students who have just graduated from high schools.

#### DUPLICATION OF CREDIT.

Regular students in the University must be on their guard against the duplication of credit, especially as many of the summer courses do not exactly correspond with the regular courses. All the Summer Session courses in a department are numbered consecutively with Roman numerals. Following the Roman numeral is usually an Arabic numeral enclosed in parentheses. This latter numeral is the number of the course in the regular catalogue which is considered a duplicate of the summer course.

## LIST OF SUMMER SESSION COURSES.

### BOTANY.

I (=1).—ELEMENTARY BOTANY. Five hours. Professor Stevens.

II (nearly=3).—GENERAL MORPHOLOGY. Three hours. Professor Cardiff, of Washburn College.

III (=55).—GENERAL BACTERIOLOGY. Three hours. Professor Cardiff.

IV (=57).—DOMESTICATED PLANTS. Two hours. Professor Stevens.

V (=54).—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. Three or five hours. Professor Stevens.

*Supplementary Course, July 18 to August 7.*

VI.—ORGANIC EVOLUTION. Three hours. Professor Stevens.

### CHEMISTRY.

I (=1).—ELEMENTARY CHEMISTRY. Five hours. Associate Professor Dains and Mr. Nash.

II (=2).—INORGANIC CHEMISTRY. Four or five hours. Professor Cady and Mr. Nash.

III (=3).—QUALITATIVE ANALYSIS. Five hours. Assistant Professor Allen.

IV (=54).—QUANTITATIVE ANALYSIS. Three, four, or five hours. Professor Cady.

V (=60).—ORGANIC CHEMISTRY II. Five hours. Associate Professor Dains.

VI.—CHEMISTRY OF PHOTOGRAPHY. Two hours. Assistant Professor Allen.

VII.—GRADUATE RESEARCH.

*Supplementary Courses, July 18 to August 7.*

VIII (nearly=52 and 53).—SANITARY, APPLIED AND FOOD CHEMISTRY. Three hours. Assistant Professor Jackson.

IX.—QUANTITATIVE ANALYSIS. Two or three hours. Assistant Professor Jackson.

### ECONOMICS.

I (nearly=1).—ELEMENTS OF ECONOMICS. Two hours. Assistant Professor Putnam.

II (nearly=2).—ECONOMIC HISTORY OF ENGLAND. Two hours. Associate Professor Boynton.



III (=50).—MONEY AND CREDIT. Two hours. Associate Professor Boynton.

IV (=60).—LABOR PROBLEMS. Two hours. Assistant Professor Putnam.

#### V.—GRADUATE COURSES.

### EDUCATION.

I (nearly=64).—EDUCATIONAL PSYCHOLOGY. Two hours. Professor Johnston.

II (=50).—HISTORY OF ANCIENT AND MEDIÆVAL EDUCATION. Three hours. Professor Olin.

III (=60).—EDUCATIONAL CLASSICS (Second series). Two hours. Professor Olin.

IV (nearly=71).—SCHOOL HYGIENE. Two hours. Associate Professor Trettien.

V (=68).—PHILOSOPHY OF EDUCATION. Three hours. Associate Professor Trettien.

VI (nearly=61).—SECONDARY EDUCATION. Two hours. Professor Johnston.

*Supplementary Course, July 18 to August 7.*

VII (nearly=66).—EXPERIMENTAL EDUCATION. Three hours. Assistant Professor Josselyn.

### ENGLISH.

I (=Education 86).—METHODS OF TEACHING ENGLISH. Three hours. Professor Hopkins.

II (nearly=71).—AMERICAN LITERATURE. Two hours. Professor Hopkins.

III (nearly=76).—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Two hours. Professor Dunlap.

IV (nearly=78).—SHAKSPERE. Two hours. Professor Dunlap.

V (nearly=73).—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours. Associate Professor O'Leary.

VI (nearly=88).—THE ENGLISH ESSAY. Two hours. Associate Professor O'Leary.

VII (nearly=50).—ADVANCED ENGLISH COMPOSITION. Two or three hours. Assistant Professor Gardner.

*Supplementary Course, July 18 to August 7.*

VIII (nearly=87).—THE DEVELOPMENT OF THE ENGLISH NOVEL. Three hours. Professor McEachron, of Washburn College.

### ENTOMOLOGY.

I.—FIELD ENTOMOLOGY. Three to six hours. Professor Hunter.

II.—BIOLOGICAL SURVEY. Six or nine hours. Professor Hunter.

III.—ORCHARD AND FOREST INSECT LIFE. Six or nine hours. Professor Hunter.

IV.—RESEARCH.

### FRENCH.

Ia (=two-fifths of 1).—ELEMENTARY FRENCH. Two hours. Assistant Professor Cowper.

II (=3).—MODERN FRENCH PROSE. Three hours. Assistant Professor Cowper.

III (=4).—FRENCH COMPOSITION. Two hours. Miss Stanton.

*Supplementary Course, July 18 to August 7.*

Ib (=three-fifths of 1 or 2).—ELEMENTARY FRENCH. Three hours. Miss Stanton.

### GEOLOGY.

I and II (=1).—GENERAL GEOLOGY. Five hours. Assistant Professor Todd.

III (=50).—AREAL GEOLOGY. Two hours. Assistant Professor Todd.

### GERMAN.

I (=1).—BEGINNING GERMAN. Five hours. Dr. Braun, of Princeton.

IIa (=two-fifths of 2).—GERMAN READER, COMPLETED. Two hours. Assistant Professor Campbell.

III (nearly=Education 85).—TEACHERS' COURSE IN GERMAN. Three hours. Associate Professor Engel.

IV.—TEACHERS' COURSE IN WILHELM TELL. Two hours. Associate Professor Engel.

V.—LESSING'S DRAMATURGY AND DRAMATIC CRITICISM. Two hours. Assistant Professor Campbell.

*Supplementary Course, July 18 to August 7.*

IIb (=three-fifths of 2).—SCHILLER'S WILHELM TELL. Three hours. Assistant Professor Campbell.

### HISTORY AND POLITICAL SCIENCE.

I (nearly=4).—MEDIÆVAL HISTORY II. Two hours. Professor Hardy, of Ottawa University.

II (=6a).—HISTORY OF MODERN ENGLAND, 1603-1912. Two hours. Assistant Professor Crawford.

III (=55).—THE FOUNDATIONS OF ENGLISH INSTITUTIONS. Two or three hours. Assistant Professor Crawford.

IV (=59).—THE FRENCH REVOLUTION. Two hours. Professor Hardy, of Ottawa University.

V.—HISTORY OF POLITICAL PARTIES IN THE UNITED STATES. Two hours. Associate Professor Dykstra.

VI.—AMERICAN POLITICAL THEORIES. Two hours. Associate Professor Dykstra.

*Supplementary Course, July 18 to August 7.*

VII (=60).—EUROPE IN THE NINETEENTH CENTURY. Three hours. Professor Hardy.

#### HOME ECONOMICS.

I (=1).—FOOD PREPARATION. Three hours. Professor Day.

II (=Education 83).—TEACHERS' COURSE IN HOME ECONOMICS. Three hours. Professor Day.

#### JOURNALISM.

I.—THE NEWSPAPER. Two or three hours. Professor Thorpe.

II.—THE SHORT STORY. Two hours. Professor Thorpe.

#### LATIN.

I (=6).—HORACE'S ODES. Three hours. Associate Professor Oliver.

II (=12).—LATIN COMPOSITION. Two hours. Associate Professor Oliver.

III.—ROMAN THOUGHT ON IMMORTALITY. Two hours. Professor Frank Justus Miller, of the University of Chicago.

IV.—TEACHERS' COURSE IN VERGIL. Two hours. Professor Miller.

#### LAW.

I.—CRIMINAL LAW. Professor Burdick.

II.—TORTS. Professor Burdick.

III.—BILLS AND NOTES. Professor Green.

IV.—AGENCY. Professor Green.

V.—INSURANCE. Associate Professor Humble.

VI.—PARTNERSHIP. Associate Professor Humble.

#### MATHEMATICS.

I (=2).—COLLEGE ALGEBRA. Three hours. Assistant Professor Mitchell.

II (=3).—PLANE TRIGONOMETRY. Two hours. Assistant Professor Mitchell.

III (=4).—ANALYTIC GEOMETRY I. Two hours. Assistant Professor White.

IV (=5).—CALCULUS I. Three hours. Associate Professor Ashton.

V (=57).—COMPLEX NUMBERS. Two hours. Associate Professor Ashton.

VI (=51).—DIFFERENTIAL EQUATIONS. Three hours. Assistant Professor White.

*Supplementary Course, July 18 to August 7.*

VII (nearly=Education 89).—TEACHERS' COURSE IN MATHEMATICS. Three hours. Assistant Professor Mitchell.

## MECHANICAL DRAWING AND ENGINEERING.

## MECHANICAL DRAWING.

I (=1).—FREE-HAND DRAWING. One hour. Assistant Professor Sluss.

II (=2).—ELEMENTARY MECHANICAL DRAWING. Two hours. Assistant Professor Sluss.

III (=3).—DESCRIPTIVE GEOMETRY. Three hours. Assistant Professor Sluss.

IV (=4).—MACHINE DRAWING. Three hours. Assistant Professor Sluss.

## MECHANICS.

V (=6).—ELEMENTARY MECHANICS. Two hours. Assistant Professor Sluss.

## MECHANICAL ENGINEERING.

VI (=1).—MACHINE DRAWING. Three hours. Assistant Professor Sluss.

VII (=2).—KINEMATICS. Three hours. Assistant Professor Sluss.

## MEDICINE.

I.—GENERAL PATHOLOGY. Four hours. Associate Professor Trimble.

II.—SPECIAL PATHOLOGY. Four hours. Associate Professor Trimble.

III.—CLINICAL PATHOLOGY. Four hours. Associate Professor Trimble.

## MUSIC.

THEORY. Miss Sweeney.

PIANO. Assistant Professor Cooke, Miss Sweeney, and Miss Wiedemann.

VOICE. Professor Hubach.

PUBLIC SCHOOL MUSIC. Professor Hubach.

## PHYSICAL EDUCATION.

I (=Education 97).—THE PRINCIPLES OF SPORTS AND GAMES. Two hours. Professor Naismith.

II (=Education 96).—TEACHERS' COURSE IN PHYSICAL EDUCATION. Two hours. Professor Naismith.

III.—SWIMMING. Professor Naismith.

IV.—BASKET BALL AND TRACK ATHLETICS. Associate Professor Hamilton.



## PHYSICS.

I (=5a).—GENERAL PHYSICS I. Mechanics and heat. Three hours. Professor Kester.

III (=5b).—GENERAL PHYSICS LABORATORY I. Mechanics and heat. Two hours. Professor Kester.

IV (=6b).—GENERAL PHYSICS LABORATORY II. Sound, light and electricity. Two hours. Professor Kester.

V (=53).—RADIOACTIVITY AND CONDUCTION OF ELECTRICITY THROUGH GASES. Three hours. Mr. Smith.

VI (=54, 55, 56, or 57).—ADVANCED PHYSICS LABORATORY. Two to four hours. Professor Kester.

## PHYSIOLOGY.

I (=parts of 1 and 2).—GENERAL PHYSIOLOGY. Three or five hours. Professor Hyde.

II.—MEDICAL PHYSIOLOGY. Five hours. Professor Hyde.

## PSYCHOLOGY.

I (=1).—ELEMENTS OF PSYCHOLOGY. Three hours. Professor Bolton, of the Arizona State Normal School.

II (nearly=2).—LABORATORY PSYCHOLOGY. Two hours. Professor Bolton.

*Supplementary Course, July 18 to August 7.*

III.—MENTAL PATHOLOGY AND ABNORMAL PSYCHOLOGY. Three hours. Professor Bolton.

## PUBLIC SPEAKING.

I (nearly=1).—THE PRINCIPLES OF ARGUMENTATION. Two hours. Assistant Professor Gesell.

II (=84).—TEACHERS' COURSE IN PUBLIC SPEAKING. Two hours. Assistant Professor Gesell.

## SHOP WORK.

## FORGE-SHOP WORK.

SHOP I.—FORGING. Assistant Professor Ward.

## PATTERN-SHOP WORK.

SHOP II.—PATTERN MAKING. Assistant Professor Jones.

SHOP 22.—JOINERY, WOOD TURNING AND FURNITURE MAKING. Assistant Professor Jones.

## FOUNDRY-SHOP WORK.

FOUNDRY WORK. Assistant Professor Jones.

## MACHINE-SHOP WORK.

SHOP III.—BENCH WORK. Assistant Professors Ward and Jones.

SHOP 33.—A practical course in the application of Shop III. Assistant Professor Ward.

SHOP IV.—LATHE WORK. Assistant Professor Ward.

SHOP V.—LATHE AND MACHINE TOOL WORK. Assistant Professor Ward.

SHOP VI.—HEAVY LATHE WORK, PLANER AND MILLING-MACHINE WORK. Assistant Professor Ward.

*Supplementary Courses, July 18 to August 7.*

All forge-shop and machine-shop courses offered for the six-weeks session are offered for the three-weeks session as well.

### SOCIOLOGY.

I (nearly=50).—ELEMENTS OF SOCIOLOGY. Two hours. Assistant Professor Helleberg.

II (nearly=55).—PSYCHOLOGICAL SOCIOLOGY. Two hours. Assistant Professor Helleberg.

III.—GRADUATE COURSES.

*Supplementary Courses, July 18 to August 7.*

IV.—CONTEMPORARY SOCIETY IN THE UNITED STATES. Three hours. Assistant Professor Helleberg.

### SPANISH.

Ia (=four-fifths of 1).—ELEMENTARY SPANISH. Four hours. Miss Gardner.

### ZOOLOGY.

I (=1).—ELEMENTARY ZOOLOGY. Five hours. Professor McClung.

II.—INVESTIGATION WORK, either in the field or in the laboratory. Five, six or nine hours. Professor McClung.

III.—MARINE STATION WORK. Three, six or nine hours.

## IX. *The School of Education.*

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### FACULTY.

FRANK STRONG, PH. D., President.

WILLIAM HERBERT CARRUTH, PH. D., Vice President of the Faculties, and Professor of Germanic Languages and Literatures.

CHARLES HUGHES JOHNSTON, PH. D., Dean of the School of Education, and Professor of Education.

EDGAR HENRY SUMMERFIELD BAILEY, PH. D., Professor of Chemistry and Metallurgy.

CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.

EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.

FRANK HEYWOOD HODDER, PH. M., Professor of American History and Political Science.

ERASMUS HAWORTH, PH. D., Professor of Geology, Mineralogy and Mining.

ARTHUR TAPPAN WALKER, PH. D., Professor of Latin Language and Literature.

WILLIAM CHASE STEVENS, M. S., 1893, Professor of Botany.

ARVIN SOLOMON OLIN, A. M., Professor of Education.

WILLIAM ALEXANDER GRIFFITH, (Academy Julien, Paris). Professor of Drawing and Painting.

EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.

CHARLES SANFORD SKILTON, A. B., Professor of Musical Theory and Organ.

CHARLES EDWARD HUBACH (Graduate of the New England Conservatory of Music; Sbriglia, Paris). Professor of Voice.

IDA HENRIETTA HYDE, PH. D., Professor of Physiology.

WILLIAM HAMILTON JOHNSON, A. M., Professor of Education.

JAMES NAISMITH, A. B., M. D., Professor of Physical Education.

SAMUEL JOHN HUNTER, A. M., Professor of Entomology.

CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.

CARL LOTUS BECKER, PH. D., Professor of European History.

FREDERICK EDWARD KESTER, PH. D., Professor of Physics.

EDNA D. DAY, PH. D., Professor of Home Economics.

LOUIS EUGENE SISSON, A. M., Associate Professor of Rhetoric.

RAYMOND ALFRED SCHWEGLER,\* A. M., Associate Professor of Education.

HOMER WALKER JOSSELYN, A. M., Assistant Professor of Education.

AUGUSTUS WILLIAM TRETTIEN,† PH. D., Assistant Professor of Education.

GEORGE WILLIAM KLEIHEGE, A. M., Assistant Instructor in Education.

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## ORGANIZATION, EQUIPMENT AND PURPOSE.

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The School of Education of the University of Kansas in its general features is representative of a national educational movement. It has developed as follows: In 1876 the legislature of the state of Kansas established a normal department at the University of Kansas. The work was not of university grade, and was discontinued by the University after some years. In 1893 a Department of Education, administratively and academically on the same basis with other departments, such as Latin, mathematics and zoölogy, was established, which continued until the year 1909 as a coördinate department under the College of Liberal Arts and Sciences. Differentiation within the general field of education and the demand for a multiplication of courses which should deal scientifically as well as practically with various and difficult types of educational problems, together with the consequent enlargement of the instructional staff, made necessary a new form of organization. As an expression of the aim, scope and scientific nature of this phase of university service to high school teachers and school administrators, the Department of Education was erected into a School of Education by the Board of Regents in July, 1909, a Dean of the School being appointed in April, 1910. It thus assumed the rank of the professional schools of Medicine, Law, Engineering and Pharmacy. The purpose of the School is to furnish to prospective teachers, principals, and superintendents, and to all other persons interested in the professional aspect of education, so far as they fall within the scope of a university, adequate opportunities for specialization in the various phases of educational work. The plan of the organization represents the University's policy of assembling and correlating most effectively the numerous forces which naturally contribute more or less directly to the preparation of educational leaders. The voting faculty and teaching staff of the School is consequently representative of practically all teaching interests, consisting of not only instructors in education courses, but of those giving teachers' courses in all branches of study offered in high schools.

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\* Absent on leave, 1911-'12.

† Appointment for 1911-'12.



The establishment of the School of Education bespeaks the University's policy of sanctioning in an administrative and decisive way this increasingly intimate and mutually helpful relationship which it enjoys with the teachers of the state. The fundamental purpose and the specific aim of the School of Education is to organize education in the University of Kansas on a strictly university and scientific basis, by equipping its students who have chosen teaching as a career with a knowledge of the principles of educational psychology, the historical evolution of educational thought and practice, and school organization, administration and method, so that they may contribute constructively toward the solution of the problems of the teaching profession throughout the public school system and thus become factors in developing a professional attitude toward teaching.

The courses are planned to meet the professional needs of the following classes: College and normal-school instructors in education, superintendents and principals of schools, heads of departments in normal and high schools, supervisors of special subjects, and teachers in high schools. Certain of the courses, in which education is presented primarily as an important function of society as well as of individuals, should also be of interest to all University students, whether they intend to become teachers or not, and are hence open to all college students of Junior standing.

The School has a growing educational museum of considerable value, including ancient and modern textbooks, former and present-day school appliances and equipments, maps and charts, a good deal of which is frequently in use in the Practice School. One special feature of this collection is an alcove of books for the professional teacher's library, a selected list of modern pedagogical or broadly theoretical treatments of current educational problems, movements, tendencies, and scientific discoveries or advancements. There are over five thousand volumes in the University library classified under the title "Education." This equipment is being greatly augmented through the acquisition of the files of leading French and German educational periodicals and classical treatises. The School of Education makes constant use of the stereopticon and numerous lantern slides, and has a rapidly growing collection of stereographs with stereoscopes for illustrating their proper use in the schools. A special room for this work, fitted up as a dark room, is reserved for such use by members of the Faculty of Education. Forty-five weekly or monthly educational periodicals come to the library. There are complete files of such American periodicals as the *Horace Mann's Reports*, *Reports of the Commissioner of Education*, *Education*, *The Educational Review*, *School Review*, *Elementary School Teacher*, *The Journal of Educational Psychology*, *The Pedagogical Seminary*, *Teachers' College Record* and *The Psychological Clinic*. Recent acquisitions are files of such English journals as *Journal of Education*, *Educational Times*, *The Schoolmaster*, *Journal of Experimental Pedagogy*, and *Special Reports of British Board of Education*; such French

journals as, *L'Education*, *Revue Internationale de L'Enseignement*, *Revue Universitaire*, and *Revue Pedagogique*; and such German periodicals as *Zeit. f. Pedagog. Psych.*, and *Experimentelle Pedagogie*, *Zeit. f. Schuldgesundheitspflege*, *Monatschrift f. höhere Schulen*, and *Neue Jahrbücher*. In addition to the usual library facilities, a commodious seminary room and an alcove in the reading room of the library are reserved for the use of the several departments within the School of Education. The seminary room is equipped with separate card index system and is under the direction of a trained library attendant. The policy is to acquire, as rapidly as available funds will permit, the needed furnishings for a well equipped educational laboratory, demonstrational apparatus for educational psychology, for experimental education, and for school hygiene and medical inspection, and to continue in a systematic way additions to the textbook library and to the educational division of the general library.

The educational museum and laboratory contains collections of various kinds of typical work done in each grade of a school system, statistical charts, kindergarten exhibits, representative assortments of school textbooks of American, English, German and French schools, and other material appropriate to the purpose of best presenting to students working school conditions. The educational laboratory contains the standard demonstrational apparatus for the study of typical educational processes, a collection of apparatus for studying the psychological nature of distinctive educative processes, both physical and mental tests for the modern experimental study of school children, and instruments of reliable precision for research as well as for demonstration in connection with school hygiene. In connection with graduate work an educational laboratory with apparatus for technical research in the psychology of reading, writing, memory, learning, habit formation, and for experimental study of formal discipline is being developed.

The School of Education is organizing as rapidly as possible a plan to collect for present and future use printed reports, school records and pupils' work on a much larger scale. To adapt a paragraph from Thorndike, the school of education of a state university should plan to preserve, exhibit and use as laboratory material all educational documents which represent the status of educational work in the state system.

"All printed reports of city superintendents, courses of study, catalogues of colleges, high schools and normal schools, proceedings of educational associations, reports of special committees, librarians, and directors of museums, alumni catalogues, and the like, should be preserved for present or future use. School archives that record valuable objective facts in the educational life histories of individuals should be preserved in large numbers, say to include 10,000 individuals per year. Samples of the actual achievements of school pupils—their examination papers, when such are known to be honest tests, their achievement under outside tests, samples of their compositions, drawing, laboratory notebooks, and the like, should be preserved.

Samples should be had from schools of many kinds; 200,000 samples annually, representing the work of 10,000 pupils, would not be too many."

If our school in this state did the work for the schools of this state, the result would be a series of effective collections, far superior in almost every case to the miscellany that now drifts into the library by custom. These collections should all be made in duplicate. One set could then be kept for local use and the other be used by all students of education in common, the student being sent to it, or that part of the collection which he needed sent to him. At the present time, with competition, each institution tries to make an independent collection of this sort; the files are incomplete, the material is uncatalogued, and the collection is of little use locally and of no use to students of other institutions, all of whom possess about the same miscellany. Each state institution should have a first-rate special collection and a share in a total collection of educational sources such as now exists nowhere and could not for any past decade be obtained at any price.

#### REQUIREMENTS FOR ADMISSION AS A REGULAR STUDENT TO SCHOOL OF EDUCATION.

The work in the School of Education is based upon a four-year high-school course, or its equivalent, and the satisfactory completion of the first two years in the College of Liberal Arts and Sciences or their equivalent, *including a course in elementary psychology.*

Applicants for admission to the School of Education who are deficient in a small portion of these requirements may be admitted conditionally, at the discretion of the Dean.

Claims for advanced standing must be made by the student at matriculation. Of his fitness for advanced work he must satisfy the professors of the subjects he elects.

When the student enters the School of Education he must select the academic subject or subjects in which he desires to specialize or announce his intention to specialize in administrative and supervisory work in education itself. His decision should largely rest upon his predilection for a study of several subjects, or for special proficiency and intensive application in a more limited range of studies, or for professional equipment in some phase of school administration and supervision. For general suggestions as to his choice of work he should consult those who offer the teachers' courses in the various subjects, or those in charge of departments of education proper.

#### DOUBLE REGISTRATION.

Students regularly registered in any of the other schools of the University may be admitted as either regular or unclassified students in the School of Education, but an application for such double registration must have approval of the deans of the two schools concerned. A student so registered will be subject to all



the regulations concerning quantity and character of courses elected prevailing in both schools. Such students are exempt from additional fees.

### UNIVERSITY TEACHERS' DIPLOMA.

The University teachers' diploma is accepted by the State Board of Education, and legally qualifies the candidate for the state teachers' certificate and for teaching positions. Without this certificate one has to go through the unpleasant and embarrassing process of standing county examinations in common-school subjects, or the examinations required by school systems organized in the first- and second-class cities. Besides this, all teachers should be professionally qualified for the work. Note that three hours (one course) in educational psychology, and three hours (one course) in history of education, *must* be taken before one may enter the other required work in education or teachers' courses.

On recommendation of the Faculty of the School of Education, the University teachers' diploma may be granted to graduates of the School of Education, to graduates of the College, and to those receiving degrees from the Graduate School, on the following conditions:

1. Candidates for both the teachers' diploma and the bachelor's degree must offer 125 hours of undergraduate work, including fifteen hours in the School of Education (at least twelve in the departments of Education).

2. Candidates for the teachers' diploma shall be required to offer a teachers' course in some academic subject. The prerequisite for a teachers' course shall be not less than twenty nor more than twenty-five hours in the subject in which the teachers' course is given or in closely allied subjects, three hours in history of education, and three hours in educational psychology. All teachers' courses, not including credits for practice, shall be not less than two nor more than four hours for one semester in length, and shall be open to students of senior and graduate standing. By permission of the Dean a portion of the work described above as prerequisite may be taken at the same time with the teachers' course, and special mature students under certain conditions, with the approval of the Dean, may specialize in education courses in lieu of a teachers' course.

3. The record of scholarship required for the teachers' diploma must average not lower than grade II in all undergraduate work.

The State Board adds a requirement of a course in school administration to the School of Education requirement of educational psychology and history of education and teachers' course.

### DEGREE IN EDUCATION.

The degree of B. S. in Education, subject to regulations printed in the latest Announcements, may be granted to students who take seventy-two hours beyond the completion of Sophomore work. This must include twenty-four hours in education, and may include the completion of the requirements for the A. B. degree.



## TEACHERS' CERTIFICATE.

A certificate, granting the privilege of teaching in the schools of Kansas for three years, will be issued by the State Board of Education to students holding the diploma from the School of Education. The Faculty of the School of Education will certify to the State Board of Education the year of graduation and the qualification of the candidate.

At the expiration of the three years a life certificate will be issued by the State Board, provided the candidate shall have taught successfully during any two of the three years. To secure this privilege the candidate must file with the State Board an application accompanied by evidence of the amount and character of his professional service under the preliminary certificate.

## SPECIAL DIPLOMA.

Mature persons who for various reasons find themselves unable to meet the exact academic requirements for the bachelor's degree in education and the regular diploma and certificate, but who show the ability to carry on the work prescribed for certain major subjects in the School of Education, may be admitted as candidates for a special diploma in teaching or the supervision of instruction in elementary schools, or in such subjects as music, free-hand drawing, manual training, hygiene, nature study, physical education, etc. Such special courses will be arranged for them as experience may show desirable. This special diploma has no legal significance.

## GROUPING OF ACADEMIC SUBJECTS.

Students of the College of Liberal Arts and Sciences who desire to secure the state teachers' certificate and the degree from the School of Education and who have already chosen teaching as a profession would do well to plan for it from the beginning of their college course.

Because of the variety of work which most teachers are required to do upon beginning to teach, and because the state certificate is a general license presupposing a rather wide acquaintance with several branches of study, at least elementary courses should be taken in not less than five subjects which are taught in the high schools.

In addition each teacher should have thorough, extended preparation in one subject and reasonable preparation in two or three subjects. Experience has shown that the following combinations are most frequently demanded: Latin, German; English, German; English, history, civics; English, Latin, history; mathematics, physics; botany, zoölogy; mathematics, physics, chemistry; physics, chemistry, botany, zoölogy, physiology, physiography.

In the larger schools Greek is sometimes given with Latin, and French or Spanish with German. One teacher is frequently required to teach all the sciences. Public speaking is desirable

as a part of the preparation for teaching English, and courses in physical education add desirable qualifications for all teaching positions in the public schools.

### ACADEMIC COURSES.

All courses of a professional pedagogical character are offered in the School of Education. Academic courses, to which students of the School of Education are admitted on the same condition as regular students of the College, are offered in the College of Liberal Arts and Sciences. Certain courses in other schools of the University will also be open to students of the School of Education. To secure admission to these courses not offered in the School of Education the candidate must register in the school in which the course he desires is given and be subject to all the regulations prevailing in that school.

The College offers the courses in literature, science and the arts that provide the so-called liberal education, and leaves in the main the applied sciences and arts to other departments. The regulations governing the work required for entrance and that done during the Freshman and Sophomore years are designed to result in the student's having had a minimum number of courses in the fundamental branches of knowledge, on which he will base his broader and more specialized work in the Junior and Senior years.

### GRADUATE POLICY OF SCHOOL OF EDUCATION.

The progressive tendency in many states is to encourage teachers and school administrators to continue in some university advanced research in education. The most vital discoveries in this field must finally be made and checked up by those on the ground—teachers in active service. This work creates a demand for those who have had training in the methods of investigation and in the interpretation of the data collected.

The School of Education provides instruction suited to the needs of graduate students in educational psychology, history and philosophy of education, educational administration, and in the principles of teaching the various academic and technical subjects. In accordance with the regulations of the Graduate School, students may pursue, as a major or minor, advanced work in any of these subjects. The general policy of the School of Education will be to encourage the awarding of the higher degrees with education as a major subject only to those persons who have already demonstrated their ability as teachers in their special subjects. This requirement may be waived at the discretion of the Faculty of the School of Education.

A close connection hence exists naturally between the School of Education and the Graduate School. A large proportion of those who enter the Graduate School expect to become teachers in colleges, normal schools, and in the best public-school systems. Indeed, the master's degree seems again about to become a teaching degree, as it was historically. The degree of Ph. D., when

taken with education as a major, should of course imply not only high grade of scholarship but also a high grade of professional skill and temperamental fitness. The master's degree usually requires one year of graduate work; the doctor's degree three years. Work leading to these higher degrees, with education as a major, will be planned in such a way as to afford preparation for the responsible positions, particularly those involving administrative and supervisory duties and teaching positions in colleges and normal schools. Graduate work, undertaken with the major in some academic subject and the minor in education, is usually planned in such a way as to afford desirable equipment for the teaching of special branches.

### GRADUATE DEGREES.

For superintendents, supervisors, high-school principals, college and normal-school instructors in education, and teachers of psychology and education in normal-training high schools, the advanced courses in education are desirable and may be so planned that the master's degree (30 hours of graduate work) may be won either by consecutive study or through several sessions of Summer School work when a full year's residence is not possible. All this work for the master's degree with education as major should be planned carefully from the beginning, after consultation with the Dean of the School of Education. Graduate students by enrolling in educational psychology and in secondary education, may win extra hours of credit by carrying on in connection with this class work further investigation on selected topics of the course. Credits for this graduate work will be awarded as consideration of the individual work thus accomplished may warrant, provided the limits set to amount of residence Summer School credits are observed.

### DEPARTMENTS OF SCHOOL RELATIONS.

The Departments of School Relations, enlarged and organized within the School of Education, represents the policy of closely affiliating within a single organization those various extra-instructional functions of the University which its complicated relationships with the school forces of the state make necessary.

In the divisions outlined below are embraced the various activities of the Departments of School Relations:

1. High School Relations.
2. (a) School Service Bureau. (b) Elementary Education in Relation to Secondary, including the administration and supervision of instruction.
3. School Hygiene, including systems of mental and physical tests, medical inspection and sanitation.
4. Department of Athletic Relations.
5. Publication of Educational Reports and Investigations.

1. The Department of High School Relations, through its proper representative, will interpret the University's position in educational matters, and will administer the established regula-



tions governing the University's attitude toward all school matters of administration, of educational standards, and of coöperation in the development of public education generally. In high school relations the ideal will be, more than formerly, that of coöperating with those who in various sections of the state are carrying on significant educational experiments, and of making coöperative studies of the school activities of the state, in such a way that the yearly reports and published investigations may conserve the best of the state's educational experience and make it common property. Inspection, in the mechanical sense of interpreting fixed standards, is no longer the chief feature of its work. Instead, by visits, conferences and coöperation, the intimate practical acquaintance of University forces and public school forces with each other's problems and points of view, is to become the definite aim of the work.

2. (a) One department of School Service will develop mainly along lines already undertaken—the popularizing of ideals of higher education and the bringing of the University to the people. Lectures from the University staff of instructors will be supplied whenever possible to the various sectional, county and rural teachers' associations, and conferences and counsel concerning all details of school work will be conducted by personal visits and by systematic correspondence whenever opportunity for such service comes. The propaganda for vocational guidance of school children has become a slogan for public educators. The development of this aspect of our democratic system of education is to be a prominent feature of the work. This development is based upon the modern conception that students should not have to wait until they leave school before they find out what are specific qualifications for the different professions. Vocational advice through school bureaus will become a feature of public education. This department will endeavor to coöperate with school officers in forwarding this movement.

(b) The field of Elementary Education, as it is related to high school work and thereby articulated with all the state systems of higher education, will receive stress to the extent that the scientific study of this grade of public education falls within the field of University study. Superintendents and grade principals are now practically required by educational necessity to be experts in analyzing the principles of supervision of elementary instruction; in tabulating and charting conditions as regards retardation, elimination, etc.; in revising methods of preserving in reliable statistical records the yearly work; in devising more satisfactory schemes for individual student records, and in adapting gradually more scientific grade and promotion principles. For work of this character it is proposed to offer the services of an expert to those wishing to coöperate with this department.

3. The Department of School Hygiene has been organized because it is becoming urgent that mental and physical tests of all school children be frequently made by a systematic and scientific method. In connection with this study of the individual student's



mental and physical condition, a system of medical inspection is becoming a marked feature of school work. Likewise the development of plans for spreading the knowledge of school hygiene, sanitation and the elementary principles of preventive medicine must follow. By coöperation with the Medical School and the instructors in physical education of the University, the School of Education, through this department, hopes to be of practical service to the schools of the state. Boards of education and superintendents of schools wishing to establish or to revise a system of medical inspection, or to inaugurate a plan for the keeping of records of individual school children which will show a useful tabulation of mental and physical characteristics, are requested to call upon this department at any time. Apparatus for demonstrating these methods of inspection and tests constitute a part of the equipment of the laboratory of the School of Education. A representative of the School, upon invitation, will spend a day at any school demonstrating these methods in so far as they seem practicable. This department also wishes to undertake some work looking toward general enlightenment on problems of sex hygiene, and wishes to coöperate with school authorities interested in arranging a series of four or six lectures for boys, and as many for girls. These lectures, organized as part of the instructional work of high schools, are to be given by members of the Faculty of the School of Education, who are equipped temperamentally and scientifically for this work.

4. The Department of Athletic Relations will aim to train students who from time to time can go out from the University to different schools and help in a systematic way in the organization and equipment required to inaugurate new lines of athletic activities, such as track work, basket ball, football, soccer, baseball, and handball and other sports which require some expert knowledge and initial encouragement. In addition to these definite organizations of sports, effort will be made, where feasible, to assist in establishing and extending playgrounds by means of lectures, illustrations, and advice as to location and equipment of fields and the setting up of field apparatus. In addition to sending out students trained for service in these matters, instructors in the Department of Physical Education will themselves by visits and by correspondence do whatever they can to further the development of athletics as a part of educational work.

5. A fifth division of the School Relations work is the Department of Educational Publications. This extra-instructional work consists in the publication of summaries of all the work above in a series of studies in education. These educational reports and investigations should represent a service for the state of Kansas analogous to the School Bulletin Studies on similar subjects issued by the United States Commissioner of Education for the whole nation. This department will consequently limit itself strictly to problems connected with educational developments within the state, and will enlarge its educational museum by preserving the yearly printed documents of school reports,

programs of study, unique policies of various school systems, and other accessible local data pertinent to educational study.

For further information concerning any of these lines of work, address inquiry to Dean of the School of Education, University of Kansas, Lawrence, Kansas.

### RECOMMENDATION OF TEACHERS.

The University endeavors to assist those of its graduates who desire to teach in securing positions, and at the same time to be of service to high schools, academies and colleges which may be in need of competent instructors. To this end a representative committee of the Faculty of the School of Education preserves a complete list and record of graduates who are engaged in teaching or have fitted themselves especially for such work. The University authorities are thus prepared at any time to recommend persons who are well qualified for any position as teacher. In so doing, great care is exercised, the special qualifications of various teachers for the particular position in hand being in every case fully considered.

Records are kept of every detail of the student's qualifications for teaching, including the estimates of all college professors of the scholarship, personality, strength of character, and general adaptability of the candidate, as well as critical estimates of his teaching ability, indicated by his practice teaching in Oread Training School.

The Committee urges members of school boards and school administrators to come to Lawrence in person when possible, so that personal conferences with both University instructors and the candidates for teaching may insure mutual satisfaction and be a guarantee of effective service.

The Committee has adopted the policy, in its official recommendations, of attaching special importance to graduate study in the professional preparation of teachers.

### SUMMER SESSION COURSES FOR TEACHERS.

The courses offered in the Summer Session are for the most part courses which are offered in the regular sessions, or modification of such courses. The seven courses offered by the School of Education to Summer Session students are directly concerned with the practical problems of public school teaching. *Most of the courses have been selected with a view to meeting the wishes of teachers, and many of them have been modified in some details for the same purpose.* But such modifications are not so great as to make the courses unsuitable for students who do not intend to teach; nor do they lower the grade of the work.

Regular students of the University must be on their guard against duplicating work. Some of the Summer Session courses, while not exactly equivalent to regular courses, are so nearly equivalent to them that credit will not be given for both. In such cases a warning is given in the statement of the course by the words, "This course will be regarded as a duplicate

of ——.” Students who have had the regular course may not take for credit the Summer Session course. Students who take the Summer Session course will be barred in the future from the regular course.

Students who desire to complete the course for graduation in the School of Education as rapidly as possible, teachers who can not attend the School of Education during the regular session, and all those who desire to win both degrees, bachelor of arts and bachelor of science in education, may make up part of their credits in the Summer Session. Address all inquiries for detailed information to the Director of the Summer Session.

#### SCHOOLMEN'S CONFERENCES AT THE UNIVERSITY.

The School of Education has in charge the direction of the Annual High School Conference which meets in March of each year, and considers the professional and broadly educational problems of the high school. The Conference of Schoolmen, held during the summer and in connection with the Summer School courses in education, has for its purpose discussions of the large movements which modify educational thought and demand changes in educational policies and ideals. The attempt is always made to view Kansas school problems from this larger background. Eminent educational authorities are secured to take active parts in the conferences.

## DEPARTMENT OF OBSERVATION AND PRACTICE TEACHING.

### THE OREAD TRAINING SCHOOL.

The Oread Training School is a direct outgrowth of the increased demands upon the University for professionally trained teachers in the high schools of the state. Since the early organization of secondary schools, the colleges and universities have been called upon to prepare the teachers. The masters in the great public schools of England come from Oxford and Cambridge. The great universities of Germany prepare the teachers for the gymnasia, and when the high schools were organized in America people turned to the college and the university for the preparation of those who were to direct the work of instruction. As the high school has expanded in its purpose and function, new problems and responsibilities have arisen. It is in response to these demands that the Board of Regents of the University of Kansas erected the Department of Education into a School of Education, and in June of 1911 authorized the establishment of Oread Training School.

The Oread Training School is so organized as to serve two distinct functions. It serves as a school of observation and practice. The prospective teacher, after having pursued his academic and theoretical training far enough, may observe the best methods of high school work. He is also offered an opportunity to gain practical experience in teaching under the direction and criticism of experienced supervisors. The school also has a second function. It is organized as a model high school where any student of high school grade is assured a course that will best meet his individual needs according to the social demands. In this function the school is the laboratory for the School of Education and the high schools of the state where new methods of work may be tried out.

The school is under the direction of a principal who is also an instructor in the faculty of the School of Education. Vital connection between this Training School and the School of Education is further effected by its supervisory relationships. The professors in the academic departments of the School of Education, who offer the teachers' courses, have immediate direction and supervision of the teaching.

The school is conducted in Myers Hall adjacent to the University grounds, and is accessible to both the University officers and student teachers. University students with deficiencies may make up these in the school. Any student who has completed the eighth grade in the public schools, or its equivalent, is eligible to admission. Those who have credits for high school work done elsewhere will be admitted to those advanced courses their previous work justifies.



OBSERVATION AND PRACTICE TEACHING FOR  
GRADUATE STUDENTS.

Arrangements have been made with the authorities of several school systems, whereby a modification of the German Probejahr plan is made possible. Graduate students of the School of Education, and seniors whose teaching qualifications are of a high order, and who have the indorsement of the School of Education, may be offered the privilege of teaching under direction of the several principals, and of studying at first hand the modern methods of school management and equipment. The students may spend a continuous period of four or more weeks of the college year in such service when feasible, and for this work may receive such credit toward their teachers' diploma and their degree in education as consideration of the individual cases may warrant. This practice work under expert direction must be done in connection with the theoretical courses of the School of Education, the *bona fide* school system serving as a genuine educational laboratory adjunct.

## DESCRIPTION OF COURSES.

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The courses are so arranged as to enable students to plan for their advanced work from their Junior year, with reference to three fairly distinct aspects of education, the historical, the scientific and theoretical, and the administrative. One course in history of education (50 or 51) and one course in educational psychology (64) are prerequisites for all other courses in the School of Education. Advanced credit from other universities or colleges, or from normal schools, will be granted as consideration of the individual cases may warrant. Such students should consult the Dean of the School before enrolling.

### HISTORICAL COURSES.

50.—HISTORY OF ANCIENT AND MEDIÆVAL EDUCATION. Three hours, first semester, at 8 and 3:30. This course is a study of educational principles and practice, systems, and educational theorists among ancient and mediæval peoples. It includes the important features of Oriental, Greek, Roman, early Christian and Saracenic education, the renaissance of learning under Charlemagne, the rise of universities, and the early phases of the Renaissance movement. Professor Olin.

Not open to students who have taken course 51.

51.—HISTORY OF MODERN EDUCATION. Three hours, second semester, at 8 and 3:30. This course begins with an examination of the doctrines and systems developing from the educational reforms and reformers of the seventeenth century, including Bacon, Comenius, Locke, and other innovators. In the eighteenth century the decline and restatement of humanism are studied, the strengthening of realism, the influence of Rousseau, and the institutional development growing out of these changes. In the nineteenth century emphasis is placed on the educational evolution of Germany, France, England and America under such leaders as Pestalozzi, Herbart, Guizot, Arnold, Spencer, Mann, and Eliot. Professor Olin.

Not open to students who have taken course 50.

59.—EDUCATIONAL CLASSICS. Two hours, first semester, at 10:15. A critical and historical study of selected dialogues of Plato, and of the educational writings of Quintillian. An attempt will be made to trace the relation between the opinions of these two writers and the educational theory and practice of the age in which they lived. Professor Olin.

60.—EDUCATIONAL CLASSICS. Two hours, second semester, at 9. An intensive study in their historical setting of the educational writings of Rousseau. Professor Olin.

63.—EDUCATION IN AMERICA. Three hours, second semester, at 9. This course will include a study of the origin and develop-

ment of educational ideas, institutions and systems in the colonial period, the evolution of the academy, high school, and professional school, the education of girls and women, manual and vocational instruction, and the work of leading educators and theorists, Mann, Willard, Lyon, Howe, Gallaudet, Barnard, Eliot, Harris. Professor Olin.

102.—SEMINAR. Educational systems of Herbart and Froebel. Two hours, first semester, hours by appointment. Professor Olin.

103.—SEMINAR. Origin and early development of Universities. Two hours, second semester, hours by appointment. Professor Olin.

### SCIENTIFIC AND THEORETICAL COURSES.

64.—EDUCATIONAL PSYCHOLOGY. Three hours, both semesters, at 9 and 2:30. This course deals with the general principles of psychology which can be applied to education and teaching, developing at the same time an elementary special psychology of the fundamental processes in educational development, such as attention, interest, feeling, and motor practice, followed by a critical study of psychology as applied to distinctive educational processes. Among the subjects treated are: Formal discipline, measurement of mental traits, habit formation and habit breaking in school work, typical studies in learning, and the psychology of number, reading, and language. Professor Johnston and Assistant Professor Josselyn.

65.—GENETIC PSYCHOLOGY FOR TEACHERS. Two hours, first semester, at 11:15. The purpose of this course is to present the facts of mental development and to summarize the results of experimental investigations and reliable observations which suggest direct educational applications. Associate Professor Schwegler.

71.—EDUCATIONAL PATHOLOGY. Two hours, first semester, at 10:15. The processes of growth and development of children are studied with special reference to the nature and causes of arrest as found in the backward, defective and degenerate children. The various types of arrested development are emphasized, together with the physical, mental and social forces that tend to cause them. The course is intended for mature students who are preparing themselves for executive positions in town and city schools. Lectures and visits to the various institutions maintained by the state for these defective and delinquent children. Associate Professor Schwegler.

56.—VOCATIONAL EDUCATION. Two hours, first semester, at 9. This course includes a discussion of the history and status of industrial and vocational education in the United States and Europe. The following are some of the topics discussed: Attitude of organized labor; attitude of employers of labor; legislation; experiments by private philanthropic institutions, industrial corporations, and public schools; articulation with the present school system; results of industrial and vocational

education as set forth in school records, reports of special commissions, etc. Assistant Professor Josselyn.

53.—SOCIAL EDUCATION. Two hours, second semester, at 8. Education in its relation to society and to the elements and forces of social life is the basis for this course. The various educational agencies—school, home, community, church and state—will be discussed from the sociological viewpoint. The influence, in the past, of social conditions upon educational aims, functions, organizations, curricula and methods, as well as the present social demands which are tending to further development and changes, will be considered. Assistant Professor Josselyn.

67.—ADVANCED EDUCATIONAL PSYCHOLOGY. Two hours, second semester, at 10:15. This course is a continuation of course 64. Professor Johnston, and Assistant Professor Josselyn.

68.—PHILOSOPHY OF EDUCATION. Three hours, first semester, at 3:30. The purpose of this course is to study the distinguishable points of view of educational theory. The attempt will be made to interrelate industrial, biological, psychological, æsthetic, ethical and sociological ideals. The course is designed for those students whose previous preparation enables them to pursue fundamental inquiries into the meaning of current educational theory.

The following problems will be considered: 1. The problems of growth and development of the child and the race through the various stages and cultures. 2. The influences of heredity and environment upon physical, mental and moral development, together with the effect of education upon the forces of heredity and environment, will be traced. 3. The various educational aims, theories of relative values and agencies will be discussed in relation to the foregoing principles. 4. Play as a factor in education, gymnastics, athletics, other subjects in the school curriculum, together with the methods and agencies for mental and moral training, will be considered. Assistant Professor Trettien.

66.—EXPERIMENTAL EDUCATION. Two hours, second semester, at 9. The work of this course consists in examining critically the methods and results of representative investigations having direct bearing on the problems of individual and class teaching, and in affording practice in adapting approved methods to the study of current school problems. It is designed to acquaint the student with experimental methods, both psychological and statistical, and to familiarize him with typical problems such as retardation, individual differences, habit experiments in school work, use of ordinary school statistics in educational investigations, value of individual record cards to parents, teachers and principals, means of improving the gathering and keeping of school records, etc. Assistant Professor Josselyn.

70.—THE EDUCATION OF FEELING AND ATTENTION. The design of this course is to treat, both historically and constructively, the subject of the training of attention and feeling in education. A review of the attitudes of ancient and modern theorists will



constitute the historical portion of the work. A consideration of typical philosophical and psychological attitudes toward the problem will follow this historical survey. The attempt will then be made to construct some workable concept of the relations of attention and the so-called elementary feelings to the complex intellectual and æsthetic states. The course will finally seek to emphasize the necessity of some recognition in educational method and incorporation in educational theory of definite attentional and emotional training. Students without considerable preparation in philosophy, psychology and education are not advised to undertake the work. Lectures, prescribed readings, and thesis. Professor Johnston. (Omitted in 1912-'13.)

55.—MENTAL MEASUREMENT OF SCHOOL CHILDREN. Two to four hours, second semester, at 10:15. This course consists in the study of the theory of subjecting mental capacity to standard measurement, together with laboratory attempts to demonstrate and apply these tests. Typical mental traits, such as those treated by Galton, Pearson, Thorndike and others, constitute the material for the work. The course may be taken, with the addition of more extended laboratory work, as a four-hour course. Associate Professor Schwegler.

57.—SCHOOL HYGIENE. Three hours, second semester, at 3:30. The work in this course will be considered under three principal divisions. (1) The conditions that determine growth and development in the different physiological stages of the child will be studied, and the common physical and mental tests employed in the study of school children will be examined. (2) The general principles of physical and mental hygiene involved in the study of school diseases, hygiene of the special senses, with tests and studies upon defective sight and hearing, hygiene of the mouth, teeth, voice, nose, physical and mental conditions of subnormal and supernormal children as affecting grading and classification, children's faults, personal habits, neuroses of development, fatigue, and the relation of these to school work will be traced. (3) The third part of the course will consist of a study of the physical conditions of the schoolroom, the standards of tests of light, sanitation and furnishings, hygiene of the classroom, instruction and discipline; medical inspection and sanitation of school buildings and equipment will be made. Assistant Professor Trettien.

100.—SEMINAR IN EDUCATIONAL PSYCHOLOGY. Three to five hours' credit, both semesters, hours by appointment. This course is planned for those students who by predilection and training in systematic psychology are qualified to conduct investigations concerned with the application of psychology to educational procedure. For 1912-'13 the work will have to do with imagery, habits and emotional processes of school children. Professor Johnston.

101.—SEMINAR IN ABNORMAL PSYCHOSES. Two to three hours' credit, both semesters, hours by appointment. Associate Professor Schwegler.

## ADMINISTRATIVE AND PRACTICAL COURSES.

72.—ELEMENTARY EDUCATION. Three hours, first semester, at 8. The elementary school and its problems are considered in the light of the historical development, characteristic tendencies, position in the educational system, organization, relation to the community, and course of study. Among the topics discussed are compulsory education and child labor; special schools for delinquents and defectives; special classes; vacation, evening, and continuation schools; and playgrounds. Assistant Professor Josselyn.

73.—SUPERVISION OF INSTRUCTION. Two hours, first semester, at 8. The purpose of this course is to present the principles underlying the work of the schools, and to discuss the teaching of the several subjects in the curriculum. Typical courses of study are examined to see what the general practice is in different cities. Among the special topics considered are departmental teaching, programs, lesson plans, and standards and tests of teaching. The special feature of the course is to utilize elementary school work to illustrate fundamental principles of education. Assistant Professor Josselyn.

61.—SECONDARY EDUCATION. Three hours, second semester, at 11:15. This course will be worked out under five heads: (1) Historical—including influences of the old grammar schools in England, the development of the colonial grammar schools, the rise of American academies and high schools, their character and growth, state systems of secondary education with some important recent tendencies. (2) The function of the high school—its relation to the elementary school, to higher educational institutions, to technical schools, to the social state, etc. (3) The course of study. An historical sketch of secondary school curricula, the bases upon which an American high-school course of study must rest, a comparison of sectionally typical high-school programs, the theory of the function of the course of study as a whole, an examination into the distinctive specific disciplines of representative established subjects in the course, a study of the reasons for the admission of vocational subjects, art appreciation courses, manual training, high school hygiene, physical training, and moral education. Each member of the class will be expected to inform himself with more detail as to the history, status and specific educational value of the particular subject or subjects he proposes later to teach in the high school. (4) Extra-instructional high school activities, including the socializing work of the high school, the organization for health, high school athletics, debates, fraternities, religious life, high school journalism, debates, civic leagues, part-time industrial work, bureaus for vocational guidance, and art clubs. (5) Organization and management. Types of secondary schools, the teaching staff, daily programs, discipline and control, and other problems, with some practical suggestions for their treatment. Professor Johnston.

74.—ADMINISTRATION OF PUBLIC EDUCATION. Three hours, second semester, at 8. A second section will be formed if necessary. This course deals with the problems found in the organiza-

tion and administration of the public school systems in the United States with special reference to city school systems. Among the topics discussed are: relation of national government to education; forms of educational control; the school superintendent; relation of superintendent, principal and teacher to school authorities; supervision of instruction; principals' and teachers' meetings; duties of principals and teachers; classification, grading and promotion of pupils; different methods of managing children; records of individual differences in pupils; study of normal and subnormal children, and the school in relation to parents' organizations, etc. Assistant Professor Josselyn.

58.—COMPARATIVE STUDY OF EDUCATIONAL SYSTEMS. Three hours, first semester, at 9. This is a study of the organization and administration of the school systems of Germany, France and England, including elementary, secondary and higher schools. The educational institutions of these countries and the methods of controlling and administering them will be compared with each other and with the corresponding institutions in the United States. Professor Olin.

69.—TECHNIQUE OF TEACHING. Two hours, both semesters, at 3:30. A careful study of the fundamental principles of classroom instruction will be made. The various subjects in the curriculum will be analyzed from the standpoint of logic and psychology. Student attitudes, motives and values, together with library and laboratory utilization will be studied. The Training School will offer abundant opportunities for demonstrative and illustrative material. The course is designed to supplement the work of teachers' courses and to correlate as much as possible with the practice teaching supervised by the principal of Oread Training School. Assistant Professor Trettien.

77.—PRACTICAL PROBLEMS OF PUBLIC-SCHOOL EDUCATION. Saturday morning at 10:00, both semesters. Credit to be arranged. The work offered in this course is planned with special reference to the needs of actual teachers and administrators living in the vicinity of Lawrence. Vital problems in school work will be studied and interpreted in the light of modern scientific principles and method of investigation. The following are some of the problems to be considered: problems of physical growth and development of children, plays and playgrounds, motor training in school work, moral training, arrested development, retardation, basis of grading, school sanitation, physical, mental and moral tests of children, laggards and how to train them, child welfare organizations.

The amount of credit given will depend upon the work of the individual student.

This course is designed for those teachers and school supervisors who, although in actual service, desire to continue their professional development. Assistant Professor Trettien will conduct the course, assisted from time to time by other instructors.

104.—SEMINAR IN EDUCATIONAL STATISTICS. Two to four hours, both semesters, hours by appointment. Assistant Professor Josselyn.



## TEACHERS' COURSES IN SPECIAL SUBJECTS.

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The prerequisites for all teachers' courses are not less than twenty nor more than twenty-five hours in the subject in which the teachers' course is given or in closely allied subjects, three hours in history of education, and three hours in educational psychology. All teachers' courses, not including credits for practice, shall be not less than two nor more than four hours for one semester in length, and shall be open to students of Senior and Graduate standing. By permission of the Dean a portion of the work described above as prerequisite may be taken at the same time with the teachers' course, and special mature students under certain conditions, with the approval of the Dean, may specialize in education courses in lieu of a teachers' course.

The items enumerated below are suggestive of the kinds of topics with which the following teachers' courses in special branches are concerned:

1. A simple statement of the broader aspects of the distinctive field of education, indicating the special adjustment of the moral, æsthetic, social and practical disciplines to be reasonably expected from a study of the subject.

2. A brief sketch of the actual history of the subject in the school curriculum, showing the gradual change and improvements in the textbook presentations of the subject, and the gradual improvements in other apparatus than textbooks, adopted for use in teaching it.

3. The gradual change in the conception of its educational value and the degree and nature of correlation with other subjects, particularly since the report of the Committee of Ten.

4. The growing refinement of methods for presenting the subject.

5. The grade preparation to be presupposed at present, its present status, as seen from a comparison of typical high-school curriculums, together with the social, psychological and practical obstacles to its attaining its ideal educational aim.

6. The necessary, and also the more ideal, preparation called for in the teacher, academic and professional.

7. References to books and special monographs dealing with the topics of the course, and a suggested list of books desirable for reference for high-school libraries.

In addition to the instruction in the following specialized courses in the theory of teaching, a continuous period of not less than six weeks of supervised practice teaching should be arranged for by students electing such courses. Exceptional facilities are offered for this practice teaching in the Oread Training School. In some departments also observation and assistants' work, equivalent to the practice teaching, may be arranged for.

92.—TEACHERS' COURSE IN BOTANY. Three hours, second



semester, at 8 or 10. Pedagogics and technique in botanical instruction. Consists of reading, lectures, and laboratory work, including the preparation of slides and other materials for use in teaching botany. Dr. Charles.

92a.—PRACTICE TEACHING IN BOTANY. Second semester, hours to be arranged. Dr. Charles.

90.—TEACHERS' COURSE IN CHEMISTRY. Two hours, second semester. Pedagogics and technique of instruction in chemistry in the high school. Professor Bailey and the instructor in charge of the elementary course.

90a.—PRACTICE TEACHING IN CHEMISTRY. Second semester, hours to be arranged. Professor Bailey and the instructor in charge of the elementary course.

95.—TEACHERS' COURSE IN DRAWING AND DESIGN. Four hours. Prerequisite, courses 54, 51 and 1 in drawing. Professor Griffith.

95a.—PRACTICE TEACHING IN DRAWING AND DESIGN. Second semester, hours to be arranged. Professor Griffith.

86.—TEACHERS' COURSE IN ENGLISH. Three hours, first semester, at 2:30. The principles of teaching English composition, language and literature; lectures, reference reading, conferences, visiting of classes and schools, reports, and final thesis. Professor Hopkins.

The prerequisites for course 86 are as follows:

Freshman English Literature (courses 10 and 11)....	5	hours.
Freshman English Composition (courses 1 and 2).....	5	"
Sophomore English Literature (courses 12 and 13)....	5	"
Advanced English Composition, any courses at option (50 to 57).....	5	"
Shakspere (course 78 or equivalent).....	3	"
Modern English Grammar (course 68).....	2	"

Students should endeavor to become acquainted with the methods and points of view of different instructors. In English literature some time should be given to each of three classes of courses: general historical courses, intensive courses in particular authors, and courses devoted to the study of particular literary types. If possible, an intending teacher should add to his undergraduate courses a year of graduate study, in which further attention may be paid to language as well as literature and composition. He should not neglect other important subjects, among which should be named education, economics, philosophy, history, foreign language, and public speaking. Professor Hopkins.

86a.—PRACTICE TEACHING IN ENGLISH. Both semesters, hours to be arranged. Professor Hopkins.

93.—TEACHERS' COURSE IN ENTOMOLOGY. Three hours, second semester, 3:30 to 5:30. Laboratory course, adapted to those who expect to teach. Lectures upon life histories, insect relationships, choice of materials, and modes of presentation. Field work on habits of social insects. Illustrative cabinets, their preparation and use. Prerequisite, zoölogy I. Professor Hunter.

Those preparing to become teachers and investigators engaged in research work should complete the fundamental courses, 1 to 4, inclusive. The aims of each student will then largely determine the selection of advanced courses. The requirements for those expecting to teach entomology in secondary schools are courses 1 to 4, inclusive, and course 7. Professor Hunter.

88.—TEACHERS' COURSE IN FRENCH. Three hours, second semester, at 11:15. Systematic review of the grammar from the point of view of the requirements of elementary instruction. Outlines of historical grammar. Study of methods of teaching languages. Open only to students who give evidence of fitness for the work. Professor Galloo.

88a.—PRACTICE TEACHING IN FRENCH. Both semesters, hours to be arranged. Professor Galloo.

85.—TEACHERS' COURSE IN GERMAN. Three hours, second semester. Advanced grammar, with theory of language teaching. Intended especially for those who desire to fit themselves for teaching German in high schools. Professor Carruth and Associate Professor Engel.

Students who plan to become teachers of German in high schools and academies should consult with the head of the department before the close of the Sophomore year. Courses 1 to 13, inclusive, are open to all students of the College. Courses 50 to 58 are open to both undergraduates in the College and to graduate students. The full amount of Latin, 1, 2, 3, for entrance is required as preparation for German 1 and 2.

85a.—PRACTICE TEACHING IN GERMAN. Both semesters, hours to be arranged. Professor Carruth and Associate Professor Engel.

91.—TEACHERS' COURSE IN HISTORY. Two hours, second semester, at 2:30. Educational values in historical instruction, and methods of teaching history in the high school. Professor Becker.

91a.—PRACTICE TEACHING IN HISTORY. Both semesters, hours to be arranged. Professor Becker.

83.—TEACHERS' COURSE IN HOME ECONOMICS. Three hours, second semester. A study of the history of the home economics movement, showing the reason for the diverse standards and aims to be found in the work in different schools. A study of the needs of different classes of schools, with a discussion of the kind of work appropriate to each. Especial emphasis will be put on the high-school problem, the ground that should be covered and methods of presentation. The planning of equipment of courses and of typical lessons. Professor Day.

83a.—PRACTICE TEACHING IN HOME ECONOMICS. Both semesters, hours to be arranged. Professor Day.

87.—TEACHERS' COURSE IN LATIN. Two hours, first semester, at 10:15. The work consists of discussion of the best literature on the aims and methods of teaching Latin, and a critical examination of some textbooks used in secondary Latin teaching. Professor Walker.

Those who wish to secure a special recommendation as teacher of Latin must elect at least twenty-five hours in the department of Latin beyond course 3; courses 4 and 12 must be included. Other courses especially recommended to those who intend to teach are 6, 8, 9, 11, 50, 57, 58, 59, and 60, and in the course in ancient history given by the department of European history. Those who wish to do the best work in Latin will need, in addition to a greater amount of Latin, some Greek and a reading knowledge of German.

87a.—PRACTICE TEACHING IN LATIN. Both semesters, hours to be arranged. Professor Walker.

89.—TEACHERS' COURSE IN MATHEMATICS. Three hours, second semester, at 9. Designed for teachers and students preparing to become teachers of mathematics. It embraces the history, pedagogy and mutual relations of the mathematical subjects usually taught in the public schools from the beginning of the seventh grade to the end of the high-school course. This course consists of (1) history of mathematics, readings, and lectures; (2) a comparative study of the mathematical curricula of the schools of this country and of Europe; (3) discussions on the best methods of presenting the topics. Students taking the above course will receive three hours' credit. Open to students who have completed courses 2 to 7 in mathematics. Assistant Professor Mitchell.

Those qualifying as teachers of mathematics in high schools are advised to complete courses 2 to 9 (twenty hours) and follow these with work in physics, the history and pedagogy of mathematics, and practice teaching.

89a.—PRACTICE TEACHING IN MATHEMATICS. Both semesters, hours to be arranged. Assistant Professor Mitchell.

82.—TEACHERS' COURSE IN PHYSICAL GEOGRAPHY. Two hours, second semester, at 9. The course includes a history of physical geography and physiography in public schools and methods of teaching them, laboratory work and out-door observations which can be conducted in high schools, meteorological apparatus and weather reports, and best methods of studying land forms and land sculpture with high-school students. Professor Haworth.

82a.—PRACTICE TEACHING IN PHYSICAL GEOGRAPHY. First semester, hours to be arranged. Professor Haworth.

97.—TEACHERS' COURSE IN PHYSICAL EDUCATION. Two hours, Tuesday and Thursday, at 9. Laboratory, hours by appointment. A study of the principles of play, the classification of games, showing the grade for which each is adapted, and an analysis of the different games, showing the principles involved and the attributes developed. The methods used in coaching and officiating, the locating, equipping and organizing of playgrounds. Professor Naismith.

97a.—PRACTICE TEACHING IN PHYSICAL EDUCATION. Two hours, first semester, at 8. Laboratory practice teaching, by appointment. An analysis of gymnastic movements, showing their adaptation to the different grades; the method of combining these



into drills; devising drills for special occasions and to suit varying conditions; organizing and conducting classes; and observation of methods by visitation and practice teaching with selected classes. Professor Naismith.

80.—TEACHERS' COURSE IN PHYSICS. Three hours, second semester, at 4:30. Discussions of the proper subject matter of an elementary course in physics, and of the various methods of treating such matter in demonstration, recitation and laboratory. Members of the class will give from time to time demonstrations on assigned topics in elementary physics. Assistant Professor Stimpson.

80a.—PRACTICE TEACHING IN PHYSICS. Second semester, hours to be arranged. Assistant Professor Stimpson.

81.—TEACHERS' COURSE IN PHYSIOLOGY. Three hours, second semester, Monday, Wednesday, Friday, at 2:30. Designed for teachers and students preparing to become teachers of physiology, hygiene and sanitation. The course embraces (1) the preparation of laboratory material and apparatus, (2) a study of physiological topics pertaining to the school, home and social life of children, (3) investigation of the effect of environmental conditions upon health and development, (4) laboratory experiments, (5) discussion on the best methods of presenting the topics, (6) recitations and lectures. Professor Hyde.

81a.—PRACTICE TEACHING IN PHYSIOLOGY. Second semester, hours to be arranged. Professor Hyde.

84.—TEACHERS' COURSE IN PUBLIC SPEAKING. Two hours, first semester, at 4:30. This course is designed to meet the needs of the secondary school teacher. The purpose of the course is to outline the common-sense, nontechnical methods of voice culture and to present a rational psychology of expression. Assistant Professor Gesell.

84a.—PRACTICE TEACHING IN PUBLIC SPEAKING. Second semester, hours to be arranged. Assistant Professor Gesell.

For further information concerning the School of Education, address CHARLES HUGHES JOHNSTON, Dean, University of Kansas.



## X. *The University Extension Division.*

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The work of the University Extension Division is comprised under the following four departments:

1. The Department of Correspondence-Study.
2. The Department of Lecture-Study.
3. The Department of General Information and Welfare.
4. The Department of Debating and Public Discussion.

### OFFICERS OF ADMINISTRATION.

FRANK STRONG, PH. D., Chancellor of the University.

RICHARD REES PRICE, A. M., Director of University Extension.

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### OFFICERS OF INSTRUCTION.

WILLIAM HERBERT CARRUTH, PH. D., Vice President of the Faculties, and Professor of Germanic Languages and Literatures.

FRANK W. BLACKMAR, PH. D., Dean of the Graduate School.  
Professor of Sociology.

OLIN TEMPLIN, A. M., Dean of the College of Liberal Arts and Sciences. Professor of Philosophy.

FRANK O. MARVIN, A. M., Dean of the School of Engineering.  
Professor of Civil Engineering.

LUCIUS E. SAYRE, PH. M., Dean of the School of Pharmacy.  
Professor of Pharmacy and Materia Medica.

EDGAR SUMMERFIELD BAILEY, PH. D., Professor of Chemistry and Metallurgy.

ALEXANDER MARTIN WILCOX, PH. D., Professor of Greek Language and Literature.

CHARLES GRAHAM DUNLAP, LITT. D., Professor of English Literature.

EDWIN MORTIMER HOPKINS, PH. D., Professor of Rhetoric and English Language.

FRANK HEYWOOD HODDER, PH. D., Professor of American History and Political Science.

ERASMUS HAWORTH, PH. D., Professor of Geology and Mineralogy.

ARTHUR TAPPAN WALKER, PH. D., Professor of Latin Language and Literature.

- WILLIAM CHASE STEVENS, M. S., Professor of Botany.  
ARVIN SOLOMON OLIN, A. M., Professor of Education.  
EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.  
IDA HENRIETTA HYDE, PH. D., Professor of Physiology.  
SAMUEL JOHN HUNTER, A. M., Professor of Entomology.  
CLARENCE ERWIN MCCLUNG, PH. D., Professor of Zoölogy.  
FERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.  
CARL LOTUS BECKER, PH. D., Professor of European History.  
L. D. HAVENHILL, PH. M., Professor of Pharmaceutical Chemistry.  
FREDERICK EDWARD KESTER, PH. D., Professor of Physics.  
GEORGE CARL SHAAD, M. S., Professor of Electrical Engineering.  
CHARLES HUGHES JOHNSTON, PH. D., Dean of the School of Education, Professor of Education.  
MERLE THORPE, A. B., Professor of Journalism.  
MILES WILSON STERLING, A. M., Associate Professor of Greek.  
HANNAH OLIVER, A. M., Associate Professor of Latin.  
ELMER F. ENGEL, A. M., Associate Professor of German.  
SELDEN LINCOLN WHITCOMB, A. M., Associate Professor of English Literature.  
MARTIN EVERETT RICE, M. S., Associate Professor of Physics.  
B. J. DALTON, B. C. E., Associate Professor of Civil Engineering.  
CLINTON MASON YOUNG, B. S., Associate Professor of Mining Engineering.  
RAYMOND ALFRED SCHWEGLER, A. M., Associate Professor of Education.  
CLARENCE ADDISON DYKSTRA, A. B., Associate Professor of American History and Political Science.  
ARTHUR JEROME BOYNTON, A. M., Associate Professor of Economics.  
CHARLES HAMILTON ASHTON, PH. D., Associate Professor of Mathematics.  
ALBERTA L. CORBIN, PH. D., Associate Professor of German.  
A. W. TRETTIEN, PH. D., Associate Professor of Education.  
EDWIN FISKE STIMPSON, B. S., Assistant Professor of Physics.  
W. J. BAUMGARTNER, A. M., Assistant Professor of Histology.  
MARGARET LYNN, A. M., Assistant Professor of English Literature.  
GEORGE J. HOOD, B. S., Assistant Professor of Mechanical Drawing.  
HENRY OTTO KRUSE, A. M., Assistant Professor of German.  
CHARLES HENRY GRAY, PH. D., Assistant Professor of English Literature.

- L. N. FLINT, A. B., Assistant Professor of Journalism.
- CLARENCE CORY CRAWFORD, PH. D., Assistant Professor of European History.
- EARL WALTER MURRAY, A. B., Assistant Professor of Latin.
- JAMES E. TODD, A. M., Assistant Professor of Geology and Mineralogy.
- JAMES A. CAMPBELL, A. M., Assistant Professor of German.
- ALFRED H. SLUSS, B. S., Assistant Professor of Mechanical Engineering.
- WILLIAM SAVAGE JOHNSON, PH. D., Assistant Professor of English Literature.
- WILLIAM P. WARD, A. B., Assistant Professor of Romance Languages.
- HERMAN C. ALLEN, A. M., Assistant Professor of Chemistry.
- HOMER W. JOSSELYN, A. M., Assistant Professor of Education.
- W. H. TWENHOFEL, A. M., Assistant Professor of Geology.
- WILLIAM W. DAVIS, A. M., Assistant Professor of American History.
- GERHARD A. GESELL, A. B., Assistant Professor of Public Speaking.
- VICTOR E. HELLEBERG, A. B., Assistant Professor of Sociology.
- U. G. MITCHELL, PH. D., Assistant Professor of Mathematics.
- DEWITT C. CROISSANT, PH. D., Assistant Professor of English.
- GEORGE E. PUTNAM, B. LITT., Assistant Professor of Economics.
- ESTHER M. WILSON, A. M., Instructor in German.
- CALVERT J. WINTER, PH. B., Instructor in Romance Languages.
- ANA JULE ENKE, PH. B., Instructor in Spanish.
- GRACE M. CHARLES, PH. D., Instructor in Botany.
- C. A. NASH, A. M., Instructor in Chemistry.
- HERBERT B. HUNGERFORD, A. B., Instructor in Entomology.
- ALLAN A. SEIPT, PH. D., Instructor in German.
- HELEN M. CLARKE, PH. D., Assistant in Correspondence Instruction.
- NELLIE M. STEVENSON, A. B., Assistant in Correspondence Instruction.
- RALPH SPOTTS, A. B., Organizer of Extension Work.

## 1. *The Department of Correspondence-Study.*

### GENERAL INFORMATION.

The University of Kansas is the head of the public-school system of the state. It offers higher education to all properly qualified students who come within its walls, follow its curriculum, and conform to its regulations. For such persons there is an unbroken path of progress from the first primary grade of the common schools to the highest degree conferred by the University.

But, unfortunately, for many persons this is not an unbroken path. A very small per cent of those who enter the schools ever reach the University. And a great many of those who drop out are fully capable, so far as mental equipment goes, of mastering a college education.

The Correspondence-Study Department has been organized with the needs of such persons in mind. If they have both capacity and ambition, they may now hope to attain an education outside of the formal system. Correspondence study will enable each student to receive effective individual instruction from experts according to his own needs and the requirements or limitations of his occupation.

**HISTORY.** The Regents have had it as their constant aim to make the University the working arm of the state, to have such research and investigation as the developing needs of the state demand, worked out by experts in the University's laboratories and libraries. While instruction of the highest grade has been provided for resident students, it has been the policy of the Regents to make the University the center of every movement which concerns the interest of the state. Now it is proposed to give every man and woman a chance to get a higher education at a minimum of expense and inconvenience.

This last step is simply a logical development of preceding steps which have all tended toward making the University in the best possible sense a democratic institution. In 1891 University Extension was established, whereby the people of the state were given the benefit of courses of lectures by University professors covering informational and cultural topics. In 1903 a Summer Session was opened for the admission of those who were so occupied during the school year as to be unable to enter as resident students. The establishment in 1909 of the Correspondence-Study Department of the University Extension Division was the culminating step in this effort to make the University serve in every way possible the educational needs of the state.

**TEACHING BY CORRESPONDENCE.** Experience and the example of the great commercial correspondence schools have demonstrated the fact that many subjects can be taught successfully by correspondence. While some of the special advantages of



residence study are lacking, this method has some compensating advantages of its own. In correspondence instruction, self-reliance, industry, initiative, perseverance and kindred qualities are peculiarly encouraged and developed. Each student studies and recites the whole lesson and every part of the lesson, and stands in relation to the teacher as an individual, and not as a member of a large class.

### THE WORK OFFERED.

**GRADE OF WORK.** Most of the work offered by correspondence is of the regular college or university grade. Persons who are unable to spend the full number of years of residence study required for a University degree may take as much as one-half of the required hours toward graduation through correspondence. But the person who intends to earn a degree in this way should plan well in advance and take counsel with the University authorities concerning such studies pursued in absence. A student should plan to do the latter part of the University course in residence, *i. e.*, at the University, since the studies required in the Freshman and Sophomore years are more generally available for correspondence study.

Many persons have failed to complete a high-school course. These persons sometimes discover afterwards that the equivalent of a high-school course is a prerequisite for a career upon which they wish to embark. For the benefit of such persons, and also for those who lack certain units required for entrance to the University, many courses of high-school grade are now offered. Pupils of small high schools which do not fully prepare for the University may thus remove possible entrance conditions.

In the state of Kansas there are many adult persons engaged as farmers, artisans, or shop workers in the various trades and crafts. These persons need industrial training to give them that theoretical knowledge of principles and processes which is necessary for the advancement of the worker and the development of the industry. These persons commonly can not meet the entrance requirements of the University, and yet are in great need of the training and teaching which can be offered by its experts and specialists. For such persons vocational courses are prepared which will not command University credit, but will, nevertheless, give the desired training in the theory and practice of the various vocations.

The work of the Correspondence-Study Department is not designed to conflict with or compete with existing educational agencies, but rather to coöperate with them and supplement them. It is assumed that when a person can, he will be in residence at some educational institution. This instruction is designed for adult persons carrying on their own education. It is open to nonresidents as well as to residents of the state of Kansas.

### THE SYSTEM.

**PROCEDURE.** The student who wishes to undertake correspondence study should first select such course or courses as he may desire to take, and send for an application blank. He

should fill out the blank with all the information called for, and return it with the required fee to the office of the Extension Division.

**THE INSTRUCTION.** Upon receipt of application and fee the first lesson will be sent, with instructions for study and methods of preparation, and directions for returning lesson sheets and reports. Each lesson will be returned to the student with such corrections, explanations and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Each assignment contains questions to test the student's methods of work as well as his understanding of the ground covered. After preparing for recitation the student writes his answers to the questions and returns them, together with any difficulties which may have arisen during his study.

**BY WHOM PREPARED.** These courses are prepared by the members of the University Faculty, and each represents a definite amount of work corresponding to an equivalence of work done in residence at the University, or in the standardized schools of our educational system.

**THE UNIT COURSE.** The unit course is divided, where practicable, into forty assignments, representing a five-hour course in residence. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five full recitation-hours per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks with a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able. Shorter courses are ordinarily divided into fifths of the unit course of forty assignments, corresponding to three-hour, two-hour, or one-hour courses in resident work at the University. A three-hour course in residence, then, would be covered by correspondence teaching in twenty-four assignments, and shorter courses in proportion. Two assignments in correspondence approximately cover the ground in quantity of a week's work in residence.

**EXAMINATIONS.** Examinations are optional with the student, but are required where credits are sought. These examinations must be taken at the University, or under conditions approved by the University. In the latter case, arrangements may often be made with the local superintendent of schools to conduct the examination.

#### REGULATIONS.

1. Students may begin correspondence courses at any time during the year, but the Department can not guarantee that all the courses will be given during the summer months.

2. For admission to the Correspondence-Study Department no preliminary examination is required. The student is required to fill out an application blank giving such information as may

be helpful in adapting the instruction to the personal needs of each student.

3. Students who undertake correspondence-study work for University credit must state this fact in advance and comply with all the requirements of the University.

4. Persons who seek a University degree must conform to all the requirements exacted by the College or School in which such degree is sought. A maximum of one-half the required credits for the A. B. degree may be accumulated through correspondence.

5. Combinations of correspondence study and the residence work of the Summer Session are possible and recommended.

6. For the benefit of the Department it is desired that the applicant state fully the purpose he has in view in taking the work, and also in detail such educational advantages, training or experience as he may have had.

7. Correspondence students will be expected to complete a unit course within twelve months from the time of enrollment.

8. During an instructor's vacation a substitute will be provided to carry on such course or courses, if possible, or the time for completing the course will be extended.

9. No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected, the fee is returned.

10. Each correspondence course is equivalent to the corresponding residence course, and commands credit unless definite statement is made to the contrary.

11. Not more than two courses may be carried through correspondence study at one time.

12. Students enrolling for credit must meet the prerequisite conditions for each course. This regulation may be waived by the instructor for a student enrolling not for credit.

#### SPECIAL ENGINEERING REGULATIONS.

1. Not more than one-fourth of the number of unit hours of credit required for graduation in any engineering department may be obtained through correspondence study.

2. Not more than seven hours of credit in sequence in courses which are interdependent may be obtained through correspondence.

3. A failure in any branch in residence may not be made up through correspondence.

#### UNIVERSITY CREDIT.

1. University credit can be granted only to students who have met the entrance requirements of the University. Upon satisfactory completion of a correspondence course designed for credit, such persons will be awarded a certificate of credit in the University. Other students' grades will be recorded merely in the files of the department and certificates issued for the same.

2. The maximum credit granted for work done by correspondence study may not exceed one-half the unit hours required for graduation.



3. At the completion of each correspondence-study course for University credit the student shall pass an examination held under the direction of the instructor giving such course, or by some one designated by the University for that purpose.

4. Work taken for credit may not be done by any student while in attendance at any institution of learning.

5. Admission credit is given for courses covering college entrance requirements which are satisfactorily completed and passed by examination.

6. University credit is given for courses of a college grade satisfactorily completed and passed by examination.

7. If the student has a record of residence work in the University, credits gained from correspondence courses are immediately transferred to that record; if not, they are held in the Correspondence-Study Department until the student secures such a record covering one year of study in residence.

8. All courses offered by the Correspondence-Study Department, whether taken for University credit or not, are on a uniform basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, a definite value, and all students who successfully complete such courses will be awarded certificates of the grade in which the work is taken.

**THE HOUR.** The term "hour," as used in the general catalogue of the University, means one hour of class work a week for one semester, or half year. The unit course is a five-hour course; that is, one in which the class meets for one hour five days in the week for half a year.

### EXPENSES.

The fees charged for correspondence instruction will be found listed on page 56. Textbooks, apparatus, dissecting material, chemicals, etc., must be purchased by the student at the University or elsewhere. Every student who enrolls will be charged only the regular \$10 incidental fee for residents of Kansas, or \$15 for nonresidents. This covers a year's tuition, during which time the student may carry two courses.

**THE PRICE.** Correspondence students will be expected to pay the incidental fee listed above. Most of the courses now offered fall under the College of Liberal Arts and Sciences, but a few are offered in the School of Engineering and the School of Pharmacy.

**MATRICULATION.** The matriculation fee of five dollars is payable only once and is exacted only from those who enter for study in residence.

**INCIDENTAL FEE.** The incidental fee covers the cost of tuition for one year from the date of registration, and must be paid each year that the student reënrolls for study. This fee is the same for all schools of the University in correspondence study, but the student is limited to two courses a year.

**BOOKS AND OUTFIT.** All necessary textbooks, drawing outfits,



apparatus, dissecting material, etc., are extra, and must be procured by the student. The student also pays postage one way.

**PAYMENTS.** The incidental fee may be paid in monthly payments of five dollars when the student finds it necessary. In this plan the general rule of payment in advance applies. No extra charge is exacted when payments are made by installments. *But in every case at least five dollars of the required fee must accompany the application.*

**HOW TO REMIT.** Money should be sent in the form of postal or express money order, or Kansas City or Chicago draft, made payable to the University of Kansas. Mail to the Director of University Extension, Lawrence, Kan.

**THE COST ANALYZED.** No effort is made to put the fees of the Correspondence-Study Department or of the University Extension Division on a money-making basis. The effort is rather to put the fees upon the lowest operating basis. The fees for the Correspondence-Study Department are therefore the same as those exacted from students in the Summer Session.

**TRAVELING LIBRARIES.** In some of the courses offered through correspondence a collection of books of reference for collateral and supplementary reading is required, so extensive that it would be a hardship on many persons to be compelled to buy these books. And yet they are books used for regular reference in the University library by students taking the same courses in residence, and are essential for the proper grasp of the subject matter. To obviate this difficulty, an arrangement has been made with the State Traveling Libraries Commission at Topeka to furnish these reference books in loan libraries of ten to twelve volumes, a separate library for each of such courses. A library covering the work of a certain course may thus be obtained and used by the student for the mere cost of transportation from Topeka and return. Which courses need traveling libraries may be learned upon application.

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## COURSES IN CORRESPONDENCE-STUDY.

### ASTRONOMY.

1.—**DESCRIPTIVE ASTRONOMY.** Twenty-four assignments, three hours' College credit.

### BOTANY.

1.—**GENERAL MORPHOLOGY OF PLANTS.** Forty assignments, five hours' College credit.

2.—**GENERAL MORPHOLOGY OF CRYPTOGRAMS.** Forty assignments, five hours' College credit.

3.—**PLANT HISTOLOGY.** Forty assignments, five hours' College credit.

## CHEMISTRY.

1.—ELEMENTARY CHEMISTRY. Forty assignments, five hours' College credit.

2.—SANITARY AND APPLIED CHEMISTRY. Forty assignments, five hours' College or Engineering credit.

3.—QUANTITATIVE ANALYSIS. Forty assignments, five hours' College or Engineering credit.

## ECONOMICS.

1.—ELEMENTS OF ECONOMICS. Forty assignments, five hours' College credit.

2.—TRADE-UNIONISM AND LABOR ORGANIZATIONS. Twenty-four assignments, three hours' College credit.

## EDUCATION.

1.—HISTORY OF ANCIENT AND MEDIAEVAL EDUCATION. Twenty-four assignments, three hours' College or Education credit.

2.—HISTORY OF MODERN EDUCATION. Twenty-four assignments, three hours' College or Education credit.

3.—EDUCATIONAL PSYCHOLOGY. Twenty-four assignments, three hours' College or Education credit.

4.—PRINCIPLES OF EDUCATION. Twenty-four assignments, three hours' College or Education credit.

5.—ADMINISTRATION OF PUBLIC EDUCATION. Twenty-four assignments, three hours' College or Education credit.

6.—SCHOOL HYGIENE. Twenty-four assignments, three hours' College or Education credit.

## ENGINEERING.

1.—HIGHWAY CONSTRUCTION. Sixteen assignments, two hours. Not for University credit.

2.—MECHANISM AND MACHINE DESIGN. Thirty-two assignments, four hours. Not for University credit.

3.—POWER-PLANT ENGINEERING. Forty assignments, five hours. Partial Engineering credit.

4.—ELEMENTS OF DIRECT-CURRENT ELECTRICAL ENGINEERING. Thirty-two assignments, four hours. Not for University credit.

5.—FREE - HAND LETTERING AND MECHANICAL DRAWING. Twenty-four assignments, three hours' Engineering credit.

6.—MACHINE DRAWING. Twenty-four assignments, three hours' Engineering credit.

7.—ELEMENTARY MECHANICS. Sixteen assignments, two hours' Engineering credit.

8.—MINE SURVEYING OR MINE ENGINEERING. Forty assignments, five hours. Not for credit.

9.—GENERAL MINING. Forty assignments, five hours. Not for credit.

10.—COAL MINING. Forty assignments, five hours. Not for credit.

11.—ORE DRESSING; CONCENTRATION OF ORES. Forty assignments, five hours. Not for credit.

12.—ELEMENTARY MINERALOGY. Forty assignments, five hours' College or Engineering credit.

13.—GENERAL GEOLOGY. Forty assignments, five hours' College or Engineering credit.

14.—ECONOMIC GEOLOGY. Forty assignments, five hours' College or Engineering credit.

### ENGLISH.

1.—RHETORIC AND ENGLISH COMPOSITION. Forty assignments, five hours' College or Engineering credit.

2.—NARRATION AND DESCRIPTION. Forty assignments, five hours' College credit.

3.—ENGLISH LITERATURE. Forty assignments, five hours' College credit.

4.—HISTORY OF ENGLISH LITERATURE. Forty assignments, five hours' College credit.

5.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Forty assignments, five hours' College credit.

6.—TYPES OF LITERATURE. Forty assignments, five hours' College credit.

7.—AMERICAN LITERATURE. Twenty-four assignments, three hours' College credit.

8.—VICTORIAN LITERATURE. Forty assignments, five hours' College credit.

9.—HISTORY OF THE ENGLISH DRAMA. Twenty-four assignments, three hours' College credit.

10.—ELEMENTARY OLD ENGLISH (ANGLO-SAXON). Twenty-four assignments, three hours' College credit.

11.—ELEMENTARY MIDDLE ENGLISH. Twenty-four assignments, three hours' College credit.

12.—BROWNING. Twenty-four assignments, three hours' College credit.

### ENTOMOLOGY.

1.—INTRODUCTORY ENTOMOLOGY. Forty assignments, five hours' College credit.

2.—THE ROLE OF INSECTS IN THE SPREAD OF DISEASE. Sixteen assignments, two hours. Not for credit.

3.—APPLIED ENTOMOLOGY. Sixteen assignments, two hours' College credit.

4.—SYSTEMATIC ENTOMOLOGY. Sixteen assignments, two hours' College credit.

## GERMAN.

- 1.—BEGINNING GERMAN. Forty assignments, five hours' College or Engineering credit.
- 2.—GERMAN II. Forty assignments, five hours' College credit.
- 3.—GERMAN III. Forty assignments, five hours' College credit.
- 4.—GERMAN IV. Forty assignments, five hours' College credit.
- 5.—SCHILLER'S DRAMAS. Forty assignments, five hours' College credit.
- 6.—THE CLASSIC DRAMA. Forty assignments, five hours' College credit.

## GREEK.

- 1.—ELEMENTARY GREEK. Forty assignments, five hours' College credit.
- 2.—XENOPHON'S ANABASIS. Forty assignments, five hours' College credit.
- 3.—HOMER'S ILIAD. Twenty-four assignments, three hours' College credit.

## HISTORY.

- 1.—AMERICAN HISTORY. Forty assignments, five hours' College credit.
- 2.—ENGLISH HISTORY. Forty assignments, five hours' College credit.
- 3.—AMERICAN GOVERNMENT. Forty assignments, five hours' College credit.
- 4.—MODERN EUROPEAN HISTORY I. Twenty-four assignments, three hours' College credit.
- 5.—MODERN EUROPEAN HISTORY II. Twenty-four assignments, three hours' College credit.

## JOURNALISM.

- 1.—THE THEORY AND PRACTICE OF ADVERTISING. Twenty-four assignments, three hours' College credit.
- 2.—THE NEWSPAPER. Twenty-four assignments, three hours' College credit.
- 3.—THE SHORT STORY. Twenty-four assignments, three hours' College credit.

## LATIN.

- 1.—ELEMENTARY LATIN. Forty assignments, one unit of entrance credit.
- 2.—CÆSAR. Forty assignments, one unit of entrance credit.
- 3.—CICERO'S ORATIONS. Forty assignments, one unit of entrance credit or five hours' College credit.
- 4.—VERGIL'S ÆNEID. Forty assignments, one unit of entrance credit or five hours' College credit.



5.—PREPARATORY PROSE COMPOSITION. Twenty-four assignments. No credit.

6.—CICERO'S DE SENECTUTE, AND PROSE COMPOSITION. Twenty-four assignments, three hours' College credit.

7.—HORACE'S ODES. Twenty-four assignments, three hours' College credit.

8.—PROSE COMPOSITION. Sixteen assignments, two hours' College credit.

9.—THE TOPOGRAPHY OF ROME. Sixteen assignments, two hours' College credit.

10.—ROMAN POLITICAL INSTITUTIONS. Twenty-four assignments, three hours' College credit.

11.—CÆSAR'S CAMPAIGNS. Twenty-four assignments, three hours' College credit.

### MATHEMATICS.

1.—ELEMENTARY ALGEBRA (Part A). Forty assignments, one unit of entrance credit.

2.—ELEMENTARY ALGEBRA (Part B). Twenty assignments, one-half unit of entrance credit.

3.—PLANE GEOMETRY. Forty assignments, one unit of entrance credit.

4.—SOLID GEOMETRY. Twenty assignments, one-half unit of entrance credit.

5.—PLANE TRIGONOMETRY. Sixteen assignments, two hours' College or Engineering credit.

6.—UNIVERSITY ALGEBRA. Twenty-four assignments, three hours' College or Engineering credit.

7.—ANALYTIC GEOMETRY. Thirty-two assignments, four hours' College or Engineering credit.

8.—PRACTICAL MATHEMATICS FOR ARTISANS. Forty assignments, five hours. No University credit.

### MINERALOGY AND GEOLOGY.

1.—ELEMENTARY MINERALOGY. Forty assignments, five hours' College or Engineering credit.

2.—GENERAL GEOLOGY. Forty assignments, five hours' College or Engineering credit.

3.—ECONOMIC GEOLOGY. Forty assignments, five hours' College or Engineering credit.

### PHARMACY.

1.—INTRODUCTORY PHARMACY. Twenty assignments, two and one-half hours' Pharmacy credit.

2.—ORGANIC MATERIA MEDICA. Twenty assignments, two and one-half hours' Pharmacy credit.

3.—PHARMACY PHYSIOLOGY. Twenty assignments, two and one-half hours' Pharmacy credit.

4.—SHORT COURSE FOR THE DEGREE PH. G. Forty assignments each in chemistry, materia medica and pharmacy through correspondence, covering two calendar years; and two Summer Sessions of six weeks each in the laboratories at Lawrence. This course leads to the degree of graduate in pharmacy.

### PHILOSOPHY.

1.—ELEMENTARY PSYCHOLOGY. Twenty-four assignments, three hours' College credit.

2.—LABORATORY PSYCHOLOGY. Sixteen assignments, two hours' College credit.

3.—INTRODUCTION TO PHILOSOPHY. Sixteen assignments, two hours' College credit.

4.—HISTORY OF ANCIENT PHILOSOPHY. Twenty-four assignments, three hours' College credit.

5.—HISTORY OF MEDIÆVAL AND MODERN PHILOSOPHY. Twenty-four assignments, three hours' College credit.

6.—ETHICS. Forty assignments, five hours' College credit.

### PHYSICS.

1.—ELEMENTARY PHYSICS. Twenty-four assignments, three hours' College credit.

2.—MECHANICS AND HEAT. Thirty-two assignments, four hours' College or Engineering credit.

3.—SOUND, LIGHT, ELECTRICITY AND MAGNETISM. Thirty-two assignments, four hours' College or engineering credit.

4.—MECHANICS AND HEAT. Twenty-four assignments, three hours' College credit.

5.—SOUND, LIGHT, ELECTRICITY AND MAGNETISM. Twenty-four assignments, three hours' College credit.

6.—THEORY OF ELECTRICITY AND MAGNETISM. Twenty-four assignments, three hours' College credit.

### PHYSIOLOGY.

1.—ELEMENTARY PHYSIOLOGY. Forty assignments, five hours' College credit.

2.—GENERAL PHYSIOLOGY. Forty assignments, five hours' College credit.

3.—PHARMACY PHYSIOLOGY. Twenty assignments, two and one-half hours' Pharmacy credit.

### PUBLIC SPEAKING.

1.—ARGUMENTATION. Twenty-four assignments, three hours' College credit.

2.—THE COMPOSITION OF PUBLIC ADDRESSES. Twenty-four assignments, three hours' College credit.

## ROMANCE LANGUAGES.

1.—ELEMENTARY FRENCH (Part A). Forty assignments, five hours' College or Engineering credit.

2.—ELEMENTARY FRENCH (Part B). Forty assignments, five hours' College or Engineering credit.

3.—MODERN FRENCH. Twenty-four assignments, three hours' College credit.

4.—COMPOSITION. Sixteen assignments, two hours' College credit.

1.—ELEMENTARY SPANISH (Part A). Forty assignments, five hours' College or Engineering credit.

2.—ELEMENTARY SPANISH (Part B). Forty assignments, five hours' College or Engineering credit.

1.—ELEMENTARY ITALIAN. Forty assignments, five hours' College or Fine Arts credit.

## SOCIOLOGY.

1.—ELEMENTS OF SOCIOLOGY. Twenty-four assignments, three hours' College credit.

2.—SOCIAL PATHOLOGY. Sixteen assignments, two hours' College credit.

## ZOOLOGY.

1.—INTRODUCTORY ZOOLOGY. Forty assignments, five hours' College credit.

53.—HISTOLOGY. Forty assignments, five hours' College credit.

## HIGH SCHOOL BRANCHES.

## ENGLISH.

First year.

Second year.

Third year.

Fourth year.

## MATHEMATICS.

Elementary Algebra ( $1\frac{1}{2}$  years).

Plane Geometry (1 year).

Solid Geometry ( $\frac{1}{2}$  year).

Plane Trigonometry ( $\frac{1}{2}$  year).

## GERMAN.

First year.

Second year.

Third year.

## LATIN.

Beginning.

Cæsar.

Cicero.

Vergil.

## HISTORY.

Ancient.

Mediæval and Modern.

English.

American.

## FRENCH.

First year.

PSYCHOLOGY ( $\frac{1}{2}$  year). METHODS AND MANAGEMENT ( $\frac{1}{2}$  year).

## 2. *The Department of Lecture-Study.*

Every year the authorities of the University of Kansas receive requests from various sources for lectures and addresses by members of the Faculty. Such requests come from high schools and colleges, religious bodies, commercial, professional and technical associations, educational associations, clubs and literary societies, alumni reunions, and lecture committees.

This lecture work, which has necessarily in the past been done in a more or less desultory and haphazard manner, under the general title of University Extension, has now been placed upon a permanent basis as one of the four departments of the University Extension Division. While single independent lectures will be offered as before for entertainment, information and culture, the emphasis of the Department's efforts will be placed upon organizing courses or series of lectures which may be offered to serious-minded students as affording, at least approximately, the intellectual discipline and information and cultural value of regular University work in residence. Such courses of lectures will cover a general topic and will closely parallel in range and in character of work the regular classroom courses in residence.

By action of the University Council, the minimum length of a regular University Extension course is defined as six lectures. Of members of University Extension classes who are candidates for credit will be required, besides attendance at lectures, additional work prescribed by the lecturer, to include reference and other reading, conferences and examinations; and the maximum credit granted upon the satisfactory completion of such a course will be one semester hour. For such a course of six lectures the fee will be \$60 and the lecturer's expenses. With the consent of the department concerned, students who are candidates for the master's degree may count *in absentia* work done in Extension courses given by members of the University Faculty, to the extent of twelve hours, allowing two hours for each course of twelve lectures.

A bulletin descriptive of the single lectures and courses now offered to Kansas communities will be sent to any address on request. This bulletin contains full information as to terms, organization, methods of procedure, credits and other details.

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## 3. *Department of General Information and Welfare.*

This department of the University Extension Division has been organized with the view of making knowledge of all sorts more generally available to the people of Kansas. The results of original research and investigation are generally published either in scientific journals or in monographs of learned societies, or in the bulletins of the various departments at Washington. In any one of these cases the man who wants information on any particular subject is generally not in touch with these



various sources of publications, and even when he is, all too frequently the matter of the bulletin or article is couched in such technical language as not to be easily understood by the untrained reader.

The business of this department is to gather together all sorts of material that contain information of value or of interest to the citizen of the state, whether he be interested primarily in problems of business, finance, sociology, municipal government, sanitation, education, pure food, or any one of a hundred topics that touch every man's life vitally in his relations with his fellow men, with his community and his commonwealth. This documentary material is classified and filed for reference and made readily available to any one who desires to make use of it. The Department itself also issues bulletins on public questions.

#### MUNICIPAL REFERENCE BUREAU.

In 1910 there was formed under this department a bureau of municipal research, which attempts to do for city officials and public-spirited citizens what a legislative reference library does for legislators. This bureau acts as a clearing-house for information and ideas concerning all kinds of municipal problems, such as those concerned with city charters, sanitation, water-works and other public utilities, franchises, uniform accounting, etc. The experiences of cities all over the country are brought together and placed at the disposal of Kansas municipalities, that they may profit both by the mistakes and by the successes of others. Copies of successful city ordinances and meritorious municipal regulations are obtained and kept on file, to be sent out to inquiring city officers. By coöperation with the faculty of the Law School, the Engineering School, and the College Department of Political Science, the Municipal Reference Bureau is also enabled to act as an information bureau for the benefit of city officials.

In connection with the Municipal Reference Bureau, a League of Kansas Municipalities has been organized. The membership of this league is made up of Kansas cities, whose officials meet in convention for two days each year to discuss municipal problems and to exchange ideas on city administration and government. The proceedings of each annual convention are issued in pamphlet form. The secretary-treasurer of the league is the director of the Extension Division. Between conventions the officials of the membership cities make large use of the Municipal Reference Bureau as a clearing-house of municipal information. Fifty-six Kansas cities hold membership in the league for the year 1911-'12.

#### WOMEN'S CLUBS.

This Department tenders its services to any club as an organization or to the individual members. This service is rendered in the following ways: by preparing club programs for a season's work; by furnishing outlines for definite courses of study; by giving references and bibliography on any pro-

posed subject of study; by furnishing an individual who has to prepare a club paper an outline and references to reading matter on the subject chosen. To a limited extent, reading matter can be lent in the form of clippings, documents, and excerpts, collected in package libraries.

### PACKAGE LIBRARIES.

For the benefit of those seeking reading matter on subjects of current or general interest, loan package libraries have been devised. These are collections of magazine articles, monographs, extracts from the Congressional Record, bulletins, newspaper clippings and other printed matter. Each package library treats of one subject in a popular way. The material is not bulky, and may usually be sent by mail. Citizens of the state find these libraries useful in preparing for debates or for club papers. High school Seniors have made large use of them in the preparation of their graduation orations or essays. These libraries are sent out as loans, to be retained for two weeks only, and no charge is made for the service. The only expense incurred by the borrower is the postage to and from the University. A list of topics on which package libraries may be obtained will be sent to any inquirer.

### LANTERN SLIDES.

This year the department has undertaken a new enterprise—the sending out of loan collections of lantern slides to high schools and other educational institutions which are provided with lanterns. No charge will be made for this service, the borrowing school being expected to pay only transportation charges and the cost of replacing any broken slides. So far as possible and convenient, the slides will be sent out in collections of fifty on each subject. The subjects so far undertaken are as follows:

Cæsar's Helvetic Campaign.	Botany.
Insect Pests of Kansas.	Wilhelm Tell.
History of Chemistry.	English History.
Physical Geography.	Ancient Rome.
Views of the University of Kansas.	

It is now planned to include with each collection of slides a syllabus, or running commentary on the slides, and from one to three books of reference. The department hopes to add to these collections as the demand arises.

### CIVIC AND SOCIAL CENTERS.

The purpose of the civic- and social-center movement is the development of a more intelligent public spirit through the wider use of the schoolhouses of the state—the people's own clubhouses. Not being used more than forty per cent of their available time, these buildings represent a great economic waste to the state. The social-center plan is to promote the use of this school property, valued at over twenty million dollars, for

the free discussion of public questions and for all other wholesome civic, educational and recreational activities. This will not interfere, however, with the primary purpose of the school buildings—the education of the young people of the state.

The “little red schoolhouse” once was the center of all the activities of the community. It was the place for the expression of neighborhood civic and social life. One of the great purposes of the present movement is the realization by the people of the latent possibilities in every schoolhouse for concentrated coöperative, constructive citizenship. New problems and questions of vital importance to cities and communities, upon which the greatest enlightenment is needed, are constantly arising. The only safe and sane way to solve them is by the concerted action of the citizens after a thorough discussion.

This great movement was given marked impetus by the organization of the Social Center Association of America, at Madison, Wis., October 26, 1911. The second meeting of this national association—whose members are the people of the United States—will be held at the University of Kansas, Lawrence, October 23-26, 1912. The meeting is to be held under the auspices of the University Extension Division.

The Extension Division of the University will be glad to lend assistance in the organization and promotion of these civic and social centers by furnishing expert advice on organization and promotion, by sending lists of topics and questions for discussion for civic clubs, parent-teacher associations, etc., lists of local sources, with subjects, extension lectures, and material on questions for debates, papers, etc. Any Kansas community which is ready to undertake an organization looking to the wider use of the school plant, and which requires the personal assistance of an adviser on the ground, may obtain the services of one without charge by addressing the University.

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#### ***4. Department of Debating and Public Discussion.***

One of the best means of encouraging the earnest and candid study of public questions is the formation of debating societies. For that reason, no village should be without such an organization, and for a high school or college to be without one should be as great an anomaly as to be without a library.

Debating cultivates the reason and the powers of argumentation and develops that open-minded approach to a new problem, that ability to look at a question pro and con and from all sides, which becomes so valuable in the mature and judicious-minded student of public affairs. But debating to be most valuable should not be purely academic, but should deal with topics of current popular interest. Not “Railway Travel versus Steamship Travel,” or “The Pen is Mightier than the Sword,” but “Popular Election of Senators,” “Postal Savings Banks,” “Bank Guaranty,” and similar topics, should be debated.

But the difficulty with debating on these subjects lies in the

finding of material and information. The Department of Debating and Public Discussion locates material on all these current topics and puts the results into bulletins in the form of references to books, magazines, and other periodicals containing the required matter. Moreover the material itself is gathered together in the form of clippings, pamphlets and magazine articles and sent out as a loan collection. These package libraries have proved themselves very useful in providing debaters with the needful information. In addition, this Department will help high school authorities and others in the forming of debating societies and debating leagues, as well as in the training of debaters.

The Kansas High School Debating League, composed of forty or fifty of the leading high schools of the state, is one of the results of the activity of this Department in encouraging debating. This organization has provided a way whereby a high school debating team may win its way through a district championship up to the championship of the state.

The Department has issued a bulletin on debating and a bulletin containing references and bibliographies on the questions to be argued by the Debating League. It stands ready to assist with references or collected material any other organization interested in debate.

Correspondence is invited from all those who are interested in forming debating societies, whether of young people or adults, for the discussion of public questions.

All communications should be addressed to the University Extension Division, The University of Kansas, Lawrence, Kan.



**PART IV.**

**Institutions Connected with the University and Under its Control.**

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## XI. *The Libraries.*

CARRIE M. WATSON, Librarian.

EDITH M. CLARKE, Cataloguer.

CLARA S. GILLHAM, Loan Desk Assistant.

MARY M. SMELSER, Accession Assistant.

NELLIE BURNHAM, Reference Assistant.

SUSIE SHAFFER, Reference Assistant.

MARY A. COLLINS, Reference Assistant.

DORA RENN BRYANT, School of Engineering Assistant.

ETHEL C. MORROW, School of Law Assistant.

SARAH EVELYN STANTON, School of Medicine.

The libraries of the University contain 77,448 volumes and 42,000 pamphlets. An annual appropriation of \$13,000 is devoted to the purchase of books, and during the year 1912-'13 about 5000 volumes and 200 pamphlets will be added. The books are selected with great care, and the reader is furnished with the latest and the best authorities in the various departments. When opportunity permits, rare and unusual books are secured. To these, under proper restrictions, the students may have access. The library is large enough to enable the student to prosecute research and to carry on original investigation. Source material, in American and European history, in the various language departments, in science, in mathematics and in other subjects is being constantly added, so that the investigator has ample facilities to carry on advanced original work. The library has been greatly strengthened during the last few years by the addition of many complete sets of journals of learned societies in the various departments of knowledge, and the current numbers of these journals are on file in the reading room.

### THE UNIVERSITY LIBRARY.

The University library is in the Spooner Library Building, and is open every day in the year, Sundays and holidays excepted. Library hours are from eight A. M. to ten P. M. when the University is in session, and during vacation from eight A. M. to six P. M. Liberal facilities for using the library are offered to all members of the University. All books, except reference books and books too rare to be easily replaced, may be taken from the library by the students for three weeks. However, if a book is needed for a special purpose or a class reservation, it may be recalled by the Librarian, and must be returned at once, after notice is received.

BOOKSTACKS. There are five stories in the stack room of the

library, each eight feet high, making all the books within easy reach. The stacks and the flooring of these rooms are of steel, making a fireproof depository for the books. Books are classified and arranged on the shelves by the Dewey system.

**CATALOGUE.** The catalogue of the library contains about 160,000 cards. It is arranged alphabetically both as to author and subject, and the author and subject cards are filed together. Cards are arranged in cases in general reading room.

**THE GENERAL READING ROOM.** The general reading room is a large, comfortable, well-equipped and well-lighted room, on the main floor of the Spooner Library. It is furnished with 200 electric lamps. In this room are about 1000 volumes of general reference books, cyclopedias, dictionaries, Poole's Index to Periodical Literature, and other books which are of special value for reference purposes.

**DEPARTMENT READING ROOMS.** The departments of German philosophy, Latin, English and education have reading rooms on the lower floor of the library, and the departments of American and European history, sociology and economics have the whole of the upper floor of the building.

**PERIODICAL ROOM.** The University provides in this room 756 periodicals and publications of learned societies and 425 newspapers published in Kansas. The list of periodicals includes almost all of the important publications of America and Europe.

**OFFICES, ETC.** The office of the Librarian, the office of the cataloguer, and the accession room adjoin the general reading room, and on the lower floor are storerooms.

**DEPARTMENT LIBRARIES.** Besides the books in Spooner Library Building, there are eleven departmental libraries in the different buildings of the University. They are placed in close conjunction with the various laboratories and lecture rooms, so as to be immediately accessible to students in scientific work.

**THE LAW LIBRARY.** The law library is located in Green Hall. It contains 6500 volumes.

**THE ENGINEERING LIBRARY.** This is located in the Marvin Hall. All works and periodicals relating to civil, mechanical and electrical engineering are placed here. A reading room is attached.

### THE LAWRENCE PUBLIC LIBRARY.

The public library of Lawrence is open to students. This library contains 11,000 volumes, mainly of general literature and fiction, and 2050 public documents, and is a valuable supplement to the University library.



## XII. *The Gymnasium.*

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JAMES NAISMITH, A. B., M. D., *Director.*

W. O. HAMILTON, A. B.

MARGARET JOHNSON, M. D.

RALPH SHERWIN, B. S.

C. B. ROOT.

The Robinson Gymnasium, erected in 1907 at a cost of \$100,000, is one of the most modern and efficient gymnasiums west of Chicago. The three floors are equipped to accommodate the greatest number of students with the greatest variety of exercises. The basement floor has a locker room with special apartments for the various athletic teams, a system of shower-baths and a swimming pool. The first floor is equipped throughout with the most modern apparatus for general and special exercises. The second floor will be used for all forms of athletic development, and for the various indoor games. In the gallery of this floor is an eighteen-lap track, upon which the greatest speed may be obtained with the least effort. Special rooms are equipped for fencing, boxing, wrestling, and handball.

The gymnasium is designed to benefit all students of the University, not only by giving an opportunity for general exercise and healthy recreation, but also by providing means of caring for the body, correcting faulty attitudes and functions, developing skill, physical judgment, and self-control. It provides, therefore, for specific training in view of any physical defects that may be remedied by proper care.

The department is under the supervision of a director who is himself a trained physician. He gives courses in physical education in the College designed especially for those who intend to teach. Associated with him are specialists in the various athletic sports.

### EXAMINATIONS.

A thorough physical examination and measurement is offered each student and a record of results is kept as a basis for advice for exercise. The results are platted on charts, so that the student may compare himself with others and note the progress he is making. Those taking work in the gymnasium or on the athletic field must pass a satisfactory examination on entering the sport. At any time that the health of the student demands it, he is debarred from taking part in any form of exercise that may injure him.

The director's office is equipped with apparatus for taking measurements and for making tests of health, skill, and strength.

The gymnasium is open from ten A. M. to six P. M. each day, Sundays excepted.

## McCOOK FIELD.

McCook Field, the gift of Col. John J. McCook, is situated only a short distance from the University and gives opportunity for all forms of outdoor athletics and sports. It contains a baseball diamond, a football field, a running track, and facilities for field athletics. A grand stand and bleachers accommodate the spectators.

### XIII. *The Museums.*

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FRANK STRONG PH. D., *ex officio* Director of the Museums.

LEWIS L. DYCHE, A. M., M. S., Curator of the Mammals, Birds, and Fishes.

CLARENCE E. MCCLUNG, PH. D., Curator of the Vertebrate Paleontological Collections.

SAMUEL J. HUNTER, A. M., Curator of the Entomological Collections.

ERASMUS HAWORTH, PH. D., Curator of the Geological and Mineralogical Collections.

WILLIAM C. STEVENS, M. S., Curator of the Herbarium.

ALEXANDER M. WILCOX, PH. D., Curator of the Classical Museum.

HANDEL T. MARTIN, Assistant Curator of Paleontology.

CHARLES D. BUNKER, Assistant Curator of Mammals, Birds, and Fishes.

FRANCIS X. WILLIAMS, A. B., Assistant Curator of Entomological Collections.

The museums of the University are extensive and valuable. The collections were begun thirty-nine years ago by the late Dr. Francis H. Snow, and have been obtained chiefly during the past thirty-four years by University exploring parties in western Kansas, Colorado, Wyoming, Arizona, New Mexico, Texas, Oregon, Washington, British America, Alaska, Greenland, and South America. The expeditions were mainly under direction of the late Dr. Francis H. Snow, Dr. Samuel W. Williston, Dr. C. E. McClung, Prof. Lewis L. Dyche, Prof. M. A. Barber, Mr. H. T. Martin, Mr. C. D. Bunker, and Mr. Frank Agrelius. Twenty-six of these expeditions were conducted by the late Doctor Snow personally. By means of the material thus accumulated, a system of exchanges has been established with leading institutions and naturalists in all parts of the United States and in other countries, so that the cabinets contain a very satisfactory representation of the fauna and flora, both recent and extinct, not only of the state of Kansas, but also the whole of North America, and to some extent of other continents. The collections are nearly all housed in the Museum of Natural History, completed in 1903, at a cost of \$75,000.

The University is now conducting a biological survey of the state, and through this means, in part, it is hoped to secure a complete representation of the animals and plants.

## ENTOMOLOGY.

The foundation for these extensive collections is the Francis Huntington Snow collection, the result of numerous expeditions and frequent exchanges conducted by the late Doctor Snow. In the collections there are in all about 1000 types determined by leading specialists in the respective groups. The collections now comprise about 26,000 species and 300,000 specimens, representing all the different orders of insects.

The orders of Lepidoptera, Coleoptera, Diptera, Orthoptera and Hemiptera are especially well represented. In the Coleoptera there are over 10,000 species; the Melanopli in Orthoptera are fully represented; the collection of Coccidæ in Hemiptera afford an excellent series for study of North American forms. These collections are being augmented annually through the University Biological Survey, being an intensive and consecutive systematic survey of all forms found within the state, their distribution and biology. The collection, as a whole, is one of the largest connected with any educational institution in the United States.

The work in connection with the museum now affords opportunity for study to students throughout the entire year, in the summer months on the survey, and in the winter months on a continuation of the study of the material obtained throughout the summer. A series of monographs on Kansas forms have been prepared and others are in progress. It is expected that these will be brought together in uniform size and binding.

Specialists frequently visit these collections for recourse to the large representation of types, and such visitors are always welcome. In order to insure the preservation of "types" it has been deemed advisable to adopt the policy of retaining all "types" in the museum.

These collections are of further practical value to the people of the state in the determination of the injurious and beneficial insects and answers to numerous inquiries upon this subject.

The collections occupy a part of the second and third floors in the Museum of Natural History.

## ZOOLOGY.

The collection of large mammals indigenous to the North American continent is very complete. The specimens include the more common and well-known animals of the United States, an excellent representation of the animals of the Atlantic coast as far north as Cape Sabine and from the continent of Greenland. Also a series from the Pacific coast as far north as the Aleutian islands and from the interior of Alaska. This large collection is being placed on exhibition on the second floor of the Museum of Natural History by Prof. L. L. Dyche and his assistants. The large panorama showing many groups of North American mammals has been brought almost to completion in the last year by Mr. Bunker and Mr. Rocklund, and descriptive pictures and labels afford a ready explanation of the exhibit. The collection occupies the entire floor, which is known as "Mammal



Hall." Besides the mounted specimens, there are 1300 mammal skulls and 1500 skins. New material is being added constantly, and mounted for study and exhibition.

The ornithological collections, which are carefully protected in mothproof cases, have been increased in the last few years from 4000 to 10,000 specimens, of which 2300 are mounted. There are about 900 species represented. During the last year a complete systematic catalogue has been prepared, and an entire rearrangement of the collections is in progress. Many of these are unmounted skins, furnishing ample material for laboratory study when fresh specimens can not readily be obtained. There is also a fine series of skeletons, representing species in size from the shrews and bats to elephants and whales.

A representative collection of marine invertebrates from the Atlantic and Pacific coasts and from Bermuda provides material for study and investigation. Very large additions to these collections were made by recent expeditions to Puget Sound.

In the conchological cabinet are included nearly 1000 species of shells, from all parts of the world.

### PALEONTOLOGY.

The collections in paleontology offer excellent facilities not only for instruction in general stratigraphic geology, but also for special advanced work in systematic paleontology. The collections of invertebrates include about 2000 species, distributed among about 500 genera. They represent all of the principal geological formations, but are especially rich in Kansas forms. The numbers of genera and species from the chief geological groups are nearly as follows.

Tertiary, 80 genera, 200 species.

Cretaceous, 80 genera, 200 species.

Jurassic, 10 genera, 30 species.

Triassic, 25 genera, 75 species.

Permo-carboniferous, 60 genera, 750 species.

Devonian, 80 genera, 300 species.

Silurian, 75 genera, 250 species.

Ordovician, 90 genera, 250 species.

Cambrian, 20 genera, 30 species.

Through exchange, purchase and collecting, the number of specimens has been largely increased during the year. A complete catalogue is being prepared and will be ready for use in the near future.

The collection of fossil vertebrates is one of the largest in America, particularly in Cretaceous forms. From the Tertiary of Kansas, Wyoming and South Dakota, Oregon and Colorado nearly all the known genera are represented. Of the Cretaceous animals there are hundreds of specimens, including not a few of exceptional perfection and completeness. The specimens of birds and reptiles are particularly important and valuable. All together, about 400 species of extinct vertebrates are represented in the museum.

Valuable additions are being made constantly to the collections, both of invertebrates and vertebrates, chiefly by field expeditions. During the last three summers the collection of Cretaceous fishes was much strengthened through additions made by expeditions to western Kansas. Recent expeditions to the Tertiary of Colorado and to the Carboniferous of Illinois have strengthened materially the museum in mammals and lower vertebrates. All the collections have been gone over and catalogues prepared, so that reference to the specimens is much easier. In order to render the collections as interesting and profitable as possible, the specimens have been supplied with descriptive labels, and a synoptic, or index, case has been placed at the entrance to the paleontology rooms. The collection occupies the most of the upper floor of the Museum of Natural History.

### PALEOBOTANY.

The collection in paleobotany is especially rich and valuable, representing thousands of specimens. The Dakota and Comanche Cretaceous series are the most extensive, and include many types of species and undescribed forms. In addition to the collection of Tertiary plants, there is a very large and valuable series of Carboniferous plants from Kansas, including many new forms. The collection is placed with that of paleontology. The purchase of a number of cases has made it possible to put on exhibition many more specimens than have been before open for public inspection. These specimens were collected in Kansas, Oklahoma, Illinois and Oregon.

### THE HERBARIUM.

The herbarium includes about 10,000 specimens, identified and labeled, of flowering plants, besides much material partly identified. The flora of Kansas and of the western Rocky Mountains is well represented. There is also a considerable amount of cryptogamic material, including sets of economic fungi of North America and of North America lichens. The herbarium is housed in Snow Hall.

### GEOLOGICAL COLLECTIONS.

The museum of economic and physical geology contains many hundred specimens. In economic geology there is a large collection of ores of various kinds, especially chosen to represent first, the character of the ores, and second, the mode of ore formations. Specimens of almost all kinds of ores and other economic products, such as gypsum, coal, oil, etc., are included and arranged in accordance with the two ideas: first, of economic value, and second, of origin or formation. Specially to be mentioned in this connection is a very complete collection of lead and zinc ores and associated minerals from the Galena-Joplin district, which is the greatest field for mining zinc ore known in the world.

The petrographic collection contains about 2000 specimens of crystalline rocks from all parts of the world, including an unusually large collection of granites, porphyrites and basic dike rocks from the area of crystalline rocks in Missouri. There is also a large and specially selected collection of crystalline rocks from New Hampshire, and another collection from the Lake Superior region.

The mineralogical collection is divided into two groups: first, a working collection for students in the mineralogical laboratory, and second, an exhibitiv collection for the museum. The former contains fair specimens and material for use in the laboratory, but representing all the leading classes of minerals, while the latter contains more pretentious and showy specimens, more generally interesting to the public.

### THE CLASSICAL MUSEUM.

The classical museum contains full-sized plaster casts of the Hermes and Satyr of Praxiteles, the Venus of Melos, the so-called Theseus of the Parthenon, three Metopes and fifty-five feet of the freize of the Parthenon, Varvakeion and Lenormant statuettes, and the Strangford shield of the Athena Parthenos, the Hegeso tombstone, the Orpheus relief, the Satyr and Mænad relief, the Borghese Warrior, the Discobolos of Myron as restored by Furtwängler, Augustus in military dress, the so-called Germanicus, nineteen busts of Greek sculpture, and Greek and Roman authors and emperors, two Tanagra figurines, and the Nike of Paionios inscription.

Models of the Acropolis of Athens, the east pediment of the Zeus temple at Olympia, and the Victories of Paionios and Samothrace.

Facsimile reproductions of the two Valphio gold cups, the so-called Nestor's cup, the lion-hunt sacrificial knife, a gold mask, a diadem, and a series of smaller gold objects found in Mycenæan graves.

Relief maps of Athens and Rome.

Laloux's restorations of Olympia, Defrasse's restorations of Epidauros, Pontremoli's restoration of Pergamon, and Weichardt's restoration of Pompeii.

Stuart and Revett's *Antiquities of Athens*, 363 plates; Penrose's *Athenian Architecture*, 47 plates; Inwood's *Erechtheum*, 39 plates; Bohn's *Propylæa*, 21 plates; Ross, Schaubert and Hansen's *Athena Nike Temple*, 13 plates; Michaelis's *Parthenon*, 15 plates; Cockerell's *Temples of Ægina and Bassæ*, 37 plates; Koldewey and Puchstein's *Temples of Lower Italy and Sicily*, 29 plates; Major's *Temples of Pæstum*, 25 plates; Adler's *Mausoleum*, 5 plates; Le Roy's *Ruins of the most beautiful monuments of Greece*, 60 plates; Fenger's eight colored plates of Doric architecture; the plates of the final reports of the excavations at Assos and Delphi, as far as they have yet been published; Piranesi's large engravings of the columns of Trajan and Marcus Aurelius; twelve photographs of architectural models in the Metropolitan Museum, New York.

A complete set (630 so far) of Brunn's plates of Greek and

Roman sculpture; 55 Braun photographs of the Elgin marbles; 139 plates of the Sabouroff collection of sculpture, terra-cottas, vases, and bronzes; Furtwängler's ancient gems, 67 plates; 82 plates of the silver vases and utensils found at Hildesheim and Roscoreale; 6 colored plates of Odyssey paintings found in Rome; Dodwell's 30 views of Greece, in color; Lau's and Genick's 84 colored plates of Greek vases; 27 colored plates of Greek vases in the British Museum; Furtwängler and Loeschke's Myocenæan vases, 49 plates; Harrison and MacColl's Greek vases, 43 plates; Furtwängler and Reichhold's large plates of Greek vases, as far as they have been published, 130; 11 colored plates of Greek and Etruscan terra-cotta sarcophagi in the British Museum; Hermann's reproductions of antique paintings (77 so far); Preller's four cartoons of wall-paintings of ancient Greek landscapes in the Albertinum at Dresden; 30 plates of Monumenti Inediti and Antike Denkmæler vases, sculpture, and architecture; 650 photographs illustrating Roman topography and life.

A facsimile of the whole of the Bacchylides manuscript; 36 plates of other Greek manuscripts; 25 facsimiles of Biblical manuscripts in the British Museum; 30 facsimiles of the Flinders Petrie Egyptian Greek papyri; 62 plates of Latin manuscripts; Roehl's collection of oldest Greek manuscripts, many of them in facsimile.

Baumeister's monuments of classical antiquity, 95 plates and 2400 illustrations; 2000 stereopticon slides of Greek and Roman views, portraits, buildings, statues, paintings, vases, and manuscripts.

The classical museum is located in Fraser Hall, south wing, second floor.



## XIV. Geological Survey.

FRANK STRONG, PH. D., Director, *ex officio*.  
ERASMUS HAWORTH, PH. D., State Geologist.  
EDGAR H. S. BAILEY, PH. D., Chemist.

THE UNIVERSITY GEOLOGICAL SURVEY OF KANSAS was organized by the Board of Regents of the University in 1894, under the general authority given them by law, and was given especial sanction and authority by legislative enactment from 1897 to 1907, when the present law was passed. The object of the Survey is to accomplish a geological survey of the state as rapidly as possible, giving a complete exposition of the geological and mineralogical resources of the state, including all subjects of economic and scientific importance.

By provision of law the Chancellor of the University is *ex officio* Director of the Survey, and the head of the Department of Geology and Mining is superintendent and state geologist. It is contemplated that the work will be done principally by members of the University Faculty and advanced students, so that the cost to the state will be a minimum. The results already obtained have been of great value to the state, especially in the development of coal, oil, gas, Portland cement, gypsum and its products, and clay manufactories.

Work was begun on the survey in 1893 and has been carried forward steadily ever since. Throughout this time from five to twelve assistants have been doing field work every summer vacation. The laboratory work and literary work have been done principally throughout the remaining nine months of the year. The subjects thus far studied and reported upon are given in the following list of publications. Other subjects have been studied to a great extent, but not yet sufficiently for the completion of a report.

### PUBLICATIONS OF THE STATE GEOLOGICAL SURVEY.

The Survey has already published the following reports, all of which are for free distribution, the recipient paying transportation charges. (Those marked with a star are out of print.)

Volume I, 1896—Reconnaissance Report on General Stratigraphy of Eastern Kansas.*	
Volume II, 1897—General Geology of Western Kansas.*	
Volume III, 1898—Special Report on Coal.....	28 cents.
Volume IV, 1898—On Upper Cretaceous Paleontology.*	
Volume V, 1899—Special Report on Gypsum and Gypsum Cement Plasters.....	16 "
Volume VI, 1900—Carboniferous Invertebrates and Cretaceous Fishes .....	28 "

Volume VII, 1902—Mineral Waters .....	20	“
Volume VIII, 1906—Special Report on Lead and Zinc..	28	“
Volume IX, 1909—Special Report on Oil and Gas....	32	“
Volume X, 1910—A Special Report on Mine Explosions, in preparation.		
Report on Mineral Resources of Kansas for 1897.....	4	“
Report on Mineral Resources of Kansas for 1898.*		
Report on Mineral Resources of Kansas for 1899.....	4	“
Report on Mineral Resources of Kansas for 1900, 1901..	5	“
Report on Mineral Resources of Kansas for 1902.*		
Report on Mineral Resources of Kansas for 1903.....	3	“

Volume I is devoted entirely to reconnaissance work in stratigraphy and a preliminary description of the general geology of eastern Kansas, with a short description of the oil and gas fields of the state and a preliminary catalogue of invertebrate fossils found in the Carboniferous age.

Volume II is a similar description of the stratigraphy and other features of general geology of western Kansas, being a companion to volume I. It has a short chapter on some phases of vertebrate paleontology.

Volume III is a special report on coal, giving a general account of the stratigraphy of eastern Kansas, the most extensive yet published, and a detailed account of the coal-bearing strata of the state, methods of mining, the chemical and physical properties of Kansas coal, and other points of a like nature.

Volume IV is devoted entirely to the paleontology of the Upper Cretaceous. It is profusely illustrated with plates and cuts of vertebrate fossils from western Kansas.

Volume V is a special report on gypsum and gypsum cement plasters, giving the results of about three years' investigation. This is probably the best account yet published on this interesting product.

Volume VI is the second volume on paleontology, and is occupied jointly by Carboniferous invertebrates and Cretaceous fishes.

Volume VII is devoted entirely to the mineral waters of the state, and gives a description not only of the mineral waters of Kansas, but of mineral waters in general.

Volume VIII is a special report on lead and zinc.

Volume IX is a special report on oil and gas, with many maps and geological sections and a lithographic geological map of the state.

Volume X is a special report on coal-mine explosions, giving a history and tabulation of all recorded mine explosions of the world, and their causes, when known, followed by extensive study of mine gases, coal dust, modes of ignition and other causes leading to mine explosions and mine fires, with suggestions and recommendations for prevention of the same. Ready soon.

The series of annual reports began with a report on the mineral productions of the state for 1897 and was continued to 1903.

The reports for 1900 and 1901 were issued jointly. Largely they are repetitions of the same subjects, as each of them contains a complete summary of the total state production to date. They cover the subjects of gold, silver, lead and zinc, coal, oil, gas, clay products, gypsum, hydraulic and Portland cements, building stone, and salt.

The report for the year 1902 was delayed in publication and thereby admitted a short report on the extraordinary flood of the Kansas river in May and June, 1903. The report for 1898 contains an extended description of Kansas salt as a special article, and similarly the report for 1902 has a specially prepared chapter on Portland cement.

For the years 1910 and 1911 work was confined principally to the completion of a stratigraphic and paleontologic survey of the Permian of Kansas and to an exhaustive study of the clays of the state. Neither of these is yet completed. The legislature of 1911 made a special appropriation for the erection and equipment of a clay-testing laboratory. After its completion the Survey will be prepared to test all clays of the state by all the methods known to science and the arts. It is proposed to prosecute the work of testing Kansas clays as rapidly as possible.

## XV. *Engineering Experiment Station.*

### STATION STAFF.

FRANK STRONG, PH. D., President.  
FRANK O. MARVIN, A. M., Director. Civil Engineering.  
EDGAR H. S. BAILEY, PH. D., Chemical Engineering.  
ERASMUS HAWORTH, PH. D., Mining Engineering.  
PERLEY F. WALKER, M. M. E., Mechanical Engineering.  
GEORGE C. SHAAD, E. E., Electrical Engineering.

### PURPOSES.

This department of University activity has been established for two reasons: First, to correlate and group together in a more systematic way the results of scientific investigation that heretofore has been done under the various departments; second, to foster, enlarge, and direct this work, especially along lines of value to this state, and to supervise the publication and distribution of the results of engineering and industrial research work.

Considerable work of practical value has already been done in the past few years, investigations of Kansas building stone, of Kansas stone for macadam roads, of paving brick, the action of repeated stresses on concrete, of the shearing strength of concrete, of the properties of hydraulic cements, of the purification of sewage, of variations in the flow of sewage, of the waters of the state, both surface and underground, of the composition of Kansas oils and gases, of the flow of gases through nozzles, of the lubricating value of Kansas oils, of the application of chemistry to manufacturing industries, etc.

Much of this kind of material lies incomplete and unused in department records for the lack of funds to complete the investigations and an efficient organization to stimulate the work and bring out results for the public benefit.

The field to be covered, and in which there are many questions arising that can be investigated to the best advantage in the well-equipped laboratories of the University, is a very large one, including such subjects as structural materials, coals, ores of lead and zinc, gypsum, clays, hydraulic cements, oils, gases as they are used for illuminants or as they produce explosions in mines or elsewhere, the waters of the state, water supplies for potable and mechanical uses, the character and disposal of sewage and other waters, the influence of bacterial action on the design



and operation of public sanitary works, hydraulic power plants, applications of electricity to service, chemistry in the arts, and many other lines of investigation of direct utility. Several lines of investigation of problems affecting engineering work are under way.

The bulletins of the Station are issued in a special series with a consecutive numbering, the initial number having been published in 1910.

All communications with reference to the work of the Station or its publications should be addressed to the Director.



**PART V.**  
**Degrees Conferred and Lists of**  
**Students.**

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# DEGREES CONFERRED.

JUNE, 1911.

## DOCTOR OF PHILOSOPHY.

Henry A. Kohman, . . . . . *Pittsburg, Pa.*

## MINING ENGINEER.

George T. Hansen, . . . . . *St. Louis, Mo.*

## CIVIL ENGINEER.

Victor Walling, . . . . . *Cananea, Sonora, Mexico.*

## MASTER OF ARTS.

Agnes A. Anderson, . . . . .	Baldwin.
Theodore H. Aschmann, . . . . .	Inman.
Gordon E. Bailey, . . . . .	Winfield.
Edward A. Baumgartner, . . . . .	Lawrence.
Lillie Bernhard, . . . . .	Lawrence.
James W. Blair, . . . . .	Topeka.
Jacob E. Boethius, . . . . .	Lindsborg.
Henry J. Broderson, . . . . .	Lawrence.
Ivan R. Burket, . . . . .	Wetmore.
Benjamin J. Clawson, . . . . .	<i>Oskaloosa, Iowa.</i>
Edmund D. Cressman, . . . . .	Lawrence.
Diedrich L. Dalke, . . . . .	Lawrence.
Faye Dodge, . . . . .	Wichita.
Cora E. Dolbee, . . . . .	Lawrence.
Lambert Eidson, . . . . .	Lawrence.
Wyman R. Green, . . . . .	<i>Mutual, Okla.</i>
James H. Hanger, . . . . .	Meriden.
Friedrich A. Hecker, . . . . .	<i>Kansas City, Mo.</i>
George W. Hess, . . . . .	Lawrence.
Ruth E. Hunt, . . . . .	Lawrence.
Roscoe C. Ingalls, . . . . .	Galena.
George W. Kleihege, . . . . .	La Crosse.
August R. Krehbiel, . . . . .	Wichita.
Wesley A. Lacey, . . . . .	<i>El Dorado Springs, Mo.</i>
Henry W. Lohrenz, . . . . .	Hillsboro.
Burt C. Ludlam, . . . . .	Lawrence.
Roxa Ethel Miller, . . . . .	Topeka.
Minnie L. Pickens, . . . . .	Lawrence.
Ulysses G. Potter, . . . . .	<i>Elgin, Ill.</i>
Noble P. Sherwood, . . . . .	Lawrence.
Benjamin B. Shore, . . . . .	Scottsville.
Frederick M. Smith, . . . . .	<i>Independence, Mo.</i>
Lura McLane Smith, . . . . .	Lincoln Center.
Lucie H. Snyder, . . . . .	Hays.
Janet M. Thayer, . . . . .	Atchison.
Willard A. Wattles, . . . . .	Wichita.
Walter B. Wise,** . . . . .	Colony.
Abbie E. Woodin, . . . . .	Iola.

\* Assigned to the class of 1910.

\*\* Also receives University teachers' diploma.

## MASTER OF SCIENCE.

Lillian E. Fowler, . . . . .	Lawrence.
Harry Gardner, . . . . .	Lawrence.
Virgil H. Moon, . . . . .	Emporia.
Carl Pleasant, . . . . .	Kansas City, Mo.
Clifford C. Young, . . . . .	Lawrence.

## BACHELOR OF ARTS.

Rose Abbott, . . . . .	Lane.
Raymond Clair Abraham, . . . . .	El Dorado.
Mabel Alexander, . . . . .	Hiawatha.
Milton David Baer, . . . . .	Beloit.
Reginald King Bailey, . . . . .	Lawrence.
Brownlee E. Baird, . . . . .	Centralia.
Charles Glenn Baird, . . . . .	Lawrence.
Wm. Quay Barnett, . . . . .	Lawrence.
Florence Jasa Bedell, . . . . .	Dodge City.
Lloyd S. Beeghly, . . . . .	Sabetha.
Homer Hecker Berger, . . . . .	Kansas City.
Alice Blair,** . . . . .	Lawrence.
Streeter Blair, . . . . .	Spring Hill.
Marjorie Louise Bodle, . . . . .	Meade.
Ellinor F. Boyd, . . . . .	Independence.
Lewis Wm. Breyfogle, . . . . .	Chanute.
Ruby Iola Briggs,** . . . . .	Lawrence.
Martin Kahao Brooks, . . . . .	Lawrence.
Carl Richards Brown, . . . . .	Lawrence.
Ernest Simpson Brown, . . . . .	Hutchinson.
Ethel Louise Brown, . . . . .	Burlington.
Mary Ethel Brown,** . . . . .	Lawrence.
Reuben Henry Brown, . . . . .	Quindaro.
Iris G. Calderhead,* . . . . .	Marysville.
Estella Eleanor Carothers, . . . . .	Kingman.
Edward Joseph Chesky,** . . . . .	Nickerson.
Zoe Clark, . . . . .	Ottawa.
Jesse Derickson Cook, . . . . .	Topeka.
Herbert Melvin Cowan, . . . . .	Abilene.
Fern Cramer,* . . . . .	Lawrence.
Lura Agnes Crego,** . . . . .	Burlington.
Naomi Esther Critchfield, . . . . .	Oskaloosa.
Gurnee G. Cross, . . . . .	Lawrence.
Anne Elizabeth Crosthwait,** . . . . .	Kansas City, Mo.
Leroy Cunningham, . . . . .	Larned.
Howard E. Curl, . . . . .	Osborne.
Bessa Allathea David, . . . . .	Bonner Springs.
Florence G. DeLay,** . . . . .	Parsons.
Carrie Celia Dolbee, . . . . .	Lawrence.
Claude Andrew Doty, . . . . .	Hoisington.
Eula Doty, . . . . .	Larned.
Ethel Douglas, . . . . .	Crestline.
Henry Fenton Draper, . . . . .	Oswego.
May Lillan Draper,** . . . . .	Lawrence.
Carl Gates Eddy,* . . . . .	Colby.
Edna Melissa Edgerton,** . . . . .	Randolph.
Letha May Edmonds, . . . . .	Lawrence.
Grace Martin Elmore,** . . . . .	Tecumseh.
Walter Titus Emery, . . . . .	Wetmore.
Mabel Evans,** . . . . .	Reserve.
James Thomas Faulkner, . . . . .	Lansing.
Harold Joel Ferguson, . . . . .	Wichita.
Bertha Fincke,** . . . . .	Rosedale.
Julius Fincke, . . . . .	Rosedale.
Nettie May Fraser,** . . . . .	Rydal.
Admund Jennings Gibson, . . . . .	McCune.
Ray Edwin Gilman, . . . . .	Leavenworth.
Harris Foster Gorsuch, . . . . .	Sharon Springs.
Sarah Allena Grafton, . . . . .	Kansas City, Mo.
Wyman Reed Green, . . . . .	Lawrence.

## BACHELOR OF ARTS—continued.

Lulu Levitt Greenough, . . . . .	Topeka.
Edward Lawrence Griffin, . . . . .	Lawrence.
Charles Merl Gruber, . . . . .	Hope.
Florence Sander Hague,** . . . . .	Lawrence.
Earl C. Hall, . . . . .	Lawrence.
Hazel Louise Hall, . . . . .	Eureka.
Harry Hamilton, . . . . .	Columbus.
Herbert Jay Hammond, jr., . . . . .	Clayton, N. M.
John Wesley Harbeson, . . . . .	Stafford.
Leta Maud Harper, . . . . .	Lawrence.
William Haverkamp, . . . . .	Lawrence.
Carol Fales Hayden,** . . . . .	Kansas City, Mo.
Violet May Haynes, . . . . .	Emporia.
Thomas Newton Hill, . . . . .	Elk Falls.
Guy Gittings Hinkson, . . . . .	Halstead.
Ruth Lillian Hodgson,** . . . . .	Lawrence.
Josephine Hoge,** . . . . .	Wellington.
Alice Owen Houston, . . . . .	Wichita.
Bertha Irene Howat,** . . . . .	Plainville.
Charlotte Virginia Howe, . . . . .	La Junta, Colo.
Nell Kent Hudson, . . . . .	Lawrence.
William Marshal Hughes, . . . . .	Lawrence.
Eva Pearl Hull, . . . . .	Lawrence.
Irvin Wesley Humphrey,* . . . . .	Russell.
Herbert B. Hungerford, . . . . .	Lawrence.
Edna L. Hunzicker,** . . . . .	Lawrence.
Ruth E. Hunt,* . . . . .	Kansas City, Mo.
Agnes Husband, . . . . .	McPherson.
Edmiston Wyatt Iles, . . . . .	Olathe.
Ruth Olivia Jackson,** . . . . .	Lawrence.
Henry John, . . . . .	Caldwell.
Alice Johnson,** . . . . .	Oskaloosa.
Clifford Park Johnson, . . . . .	Lawrence.
Robert K. Johnston, . . . . .	Lawrence.
James Frank Jolley, . . . . .	Topeka.
Harry Ellsworth Kraus,** . . . . .	Alta Vista.
Louis LaCoss, . . . . .	Lawrence.
William McElroy Land, . . . . .	Fort Scott.
John Emil Langenwaller, . . . . .	Halstead.
Pearl Astella L'Heureux,** . . . . .	Nickerson.
Hazel Leslie, . . . . .	Lawrence.
Leota Love Lieurance,** . . . . .	Gas.
Orpha Grace Light,** . . . . .	Lawrence.
Lola Eleanor Lindsey, . . . . .	Cherryvale.
Beryl Hanah Lovejoy, . . . . .	Atwood.
Charles F. Maris, . . . . .	Lawrence.
Lenore Anna Maughlin, . . . . .	Lawrence.
Novma J. Mering,** . . . . .	Great Bend.
Bruce W. Merwin,** . . . . .	Lawrence.
Lillian Ora Miller, . . . . .	Lyndon.
Helen Ruth Morrow, . . . . .	Topeka.
Frank Spafard Motz, . . . . .	Hays.
Kenneth Oliver Munson, . . . . .	Lawrence.
Joseph W. Murray, . . . . .	Dillon.
Joseph Wakefield Myers, . . . . .	Galva.
Paul Bertram Nees, . . . . .	Independence.
Chas. Rudolph Nesbitt, . . . . .	Garnett.
Frank W. Nesbitt, . . . . .	Garnett.
Millicent Fisher Noftzger,** . . . . .	Anthony.
Mayrea Noyes, . . . . .	Portsmouth, Va.
Raymond Clifton Ogden,* . . . . .	Lawrence.
Elbert Leslie Overman, . . . . .	Lawrence.
Stephen Alan Park, . . . . .	Lawrence.
Charles E. Penny,* . . . . .	Lawrence.
Fred E. Pettit, jr., . . . . .	Peabody.
Helen Tenney Phillips, . . . . .	Lawrence.
William Jay Plank, . . . . .	Wichita.
Mary Elizabeth Polack,** . . . . .	Marysville.

## BACHELOR OF ARTS—concluded.

Eliot Porter, . . . . .	Topeka.
Floyd William S. Pratt, . . . . .	Waukomis, Okla.
Walter Otho Quiring, . . . . .	Newton.
Dessa Anna Rankin, . . . . .	Lawrence.
Ruby Ravenscraft,* . . . . .	Ashland.
Beatrice B. Reed,** . . . . .	Glasco.
Clarence Thornton Rice,** . . . . .	Marysville.
Edith Stewart Rice,** . . . . .	Marysville.
George Crosier Richardson, . . . . .	Eureka.
William Selden Robb,* . . . . .	Lawrence.
Louis A. Rufener,** . . . . .	Abilene.
Marienne Sapp, . . . . .	Galena.
Pauline H. Saunders, . . . . .	Lawrence.
Clara Frances Schimmel,* . . . . .	Leavenworth.
Mary D. Schmalzried,* . . . . .	Lawrence.
Francis Dean Schnacke, . . . . .	Topeka.
Lucy Senior,** . . . . .	Lawrence.
Mary Belle Senior, . . . . .	Lawrence.
William Elbert Simon, . . . . .	Garnett.
Delbert O. Smith, . . . . .	Minneapolis.
Jas. Gilliland Smith, . . . . .	Anthony.
Jean Eleanor Smith,** . . . . .	Lawrence.
Lewis Benedict Smith, . . . . .	Ogden, Utah.
Fred Poehler Smithmeyer, . . . . .	Lawrence.
Ruby Mae Souders,** . . . . .	Kingman.
Ruth Gladys Spray, . . . . .	Lawrence.
Murl Preston Springer, . . . . .	Tulsa, Okla.
Effie Louise Steven, . . . . .	Lawrence.
Laurene Steven,* . . . . .	Lawrence.
Lois Elizabeth Stevens, . . . . .	Lawrence.
Frank Webb Stockton, . . . . .	Fredonia.
Roy Henry Stockwell, . . . . .	Lawrence.
James Albion Stolbert, . . . . .	Kansas City, Mo.
Floyd Benjamin Streeter,** . . . . .	Hesston.
Lena Charles Terrill, . . . . .	Lawrence.
Olive Elizabeth Terrill,** . . . . .	Lawrence.
Lucy Blayney Thomas, . . . . .	Lebanon, Ky.
Ruby Clarke Thornton,** . . . . .	Atchison.
Harry Martin Trowbridge, . . . . .	Kansas City.
Frank Austin Trump, . . . . .	Formoso.
Russell Bacon Van Zandt, . . . . .	Hutchinson.
Mabel Olive Watkins,** . . . . .	Lawrence.
David Henry Wenrich, . . . . .	Lawrence.
Frances Christine Wenrich,** . . . . .	Lawrence.
Mary Strever Wheeler,** . . . . .	Lawrence.
Benjamin Edwin White, . . . . .	Ada.
Edwin Clay White, . . . . .	Kansas City, Mo.
Ruth Elizabeth Wilhelm, . . . . .	Lawrence.
Anna Elizabeth Williams, . . . . .	Clay Center.
Waldine L. Williams, . . . . .	Kansas City.
Edith Mary Willis,** . . . . .	Lawrence.
Roy Yarger Work, . . . . .	Ellsworth.
George Leroy Wright, . . . . .	Lawrence.
Josephine Silone Yates, . . . . .	Kansas City, Mo.
Nettie Zook,** . . . . .	Fort Scott.

## BACHELOR OF SCIENCE.

Henry D. Ahrens, . . . . .	Paola.
Warren S. Bellows, . . . . .	Kansas City, Mo.
Oscar Crist Boerner, . . . . .	Colby.
Fritz Graf Broeker, . . . . .	Lawrence.
Jesse Fred Brown, . . . . .	Lawrence.
Walter C. Burnham,* . . . . .	Wa Keeney.
Lee M. Bush, . . . . .	Burlingame.
William Caldwell, . . . . .	Geneseo.
Claude Everett Cayot, . . . . .	Parsons.
Charles Herbert Chapman, . . . . .	Topeka.



## DEGREES CONFERRED.

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### BACHELOR OF SCIENCE—concluded.

James Erle Clark, . . . . .	Osborne.
William Frederick Coors, . . . . .	Humboldt.
Oscar Dahlene, . . . . .	Lawrence.
Herbert A. Ellis, . . . . .	Pratt.
John Dillon Farrell, . . . . .	Wamego.
Robert Richards Fisher, . . . . .	Lawrence.
William Fishman, . . . . .	<i>Kansas City, Mo.</i>
Ross Emerson Hall, . . . . .	Hutchinson.
Chas. Arthur Haller, . . . . .	Alma.
John Kahao Hamilton, . . . . .	<i>Kansas City, Mo.</i>
Robert Hugh Hammond, . . . . .	Independence.
Charles A. Haskins,* . . . . .	Kingman.
Henry A. Hoffman, . . . . .	Ellsworth.
Wilbur H. Judy, . . . . .	Ottawa.
Stephen Lisle Kaffer, . . . . .	Atchison.
Victor E. Lednický, . . . . .	Everest.
Edward Joseph Lieber, . . . . .	Osage City.
Verne Vere Long, . . . . .	Madison.
Harley Crosby Lauderback, . . . . .	Denton.
Frank Curtis Lynch, . . . . .	Cherryvale.
Robert Collamer March, . . . . .	Topeka.
C. Leonard McWhorter, . . . . .	Lawrence.
Clifford William Nystrom, . . . . .	Topeka.
Floyd Price Ogden, . . . . .	Lawrence.
Karl Lautz Pohlman, . . . . .	Ellsworth.
Roy Albert Porterfield, . . . . .	Holton.
Thomas Anthony Purton, . . . . .	Minneapolis.
Henry Warren Reding, . . . . .	Lawrence.
David Hubbard Redinger, . . . . .	Vinland.
Ralph Eugene Scamell, . . . . .	Atchison.
Timothy Ward Shotts, . . . . .	La Crosse.
Roy Elbert Spear, . . . . .	Wellington.
Amel E. Stegeman, . . . . .	Hope.
Thomas James Stephenson, . . . . .	Holton.
Brainerd Rae Stocks, . . . . .	Garden City.
Robert William Thomas, . . . . .	Topeka.
Ernest Roy Tibbets, . . . . .	Lawrence.
Kenneth F. Troup, . . . . .	Kansas City.
John Abraham Van den Broek, . . . . .	Lawrence.
Will Elbert Vawter, . . . . .	Osawatimie.
Guss Everett Weekly, . . . . .	Iola.
Ernest Edward Weibel, . . . . .	Lawrence.
George Stephen Weith, . . . . .	La Harpe.
Claude Waldo Wright,* . . . . .	Iola.
Axel Wm. Young, . . . . .	Iola.

### BACHELOR OF MUSIC.

Blanche Anna Barkdull, . . . . .	Lawrence.
Elizabeth Bethers, . . . . .	Lyons.
Lyla Della Edgerton, . . . . .	Randolph.
Pearl Ellis, . . . . .	El Dorado.
Creola Olive Ford, . . . . .	Lawrence.
Clara Augusta Hase, . . . . .	Lawrence.
Ethel Mary Hess, . . . . .	Alma.
Elva Bonn Sanders, . . . . .	Burlington.
Zana Schleifer, . . . . .	Lawrence.
Mae Sellards, . . . . .	Lawrence.
Hazel Stiles, . . . . .	Leavenworth.
Gertrude Nelle Varner, . . . . .	Topeka.

### CERTIFICATE IN EXPRESSION.

Lucile Valentine Barrett, . . . . .	Hoisington.
Cornelia Hardcastle, . . . . .	Emporia.
Leah Constance McCammon, . . . . .	Lawrence.
Gretchen Rankin, . . . . .	Lawrence.

## BACHELOR OF PAINTING.

Mattie Evelyn Crum, . . . . .	Munden.
Fern Elizabeth Edie, . . . . .	Lawrence.
Sarah Baker Fisher, . . . . .	Lawrence.
Gertrude Mabel Rowlands, . . . . .	Lawrence.
E. Maynard Young, . . . . .	Girard.

## BACHELOR OF LAWS.

Harry Clark Allphin, . . . . .	Leoti.
Adelbert Owen Andrew, . . . . .	Gardner.
Roy Harrison Baer, . . . . .	Ransom.
Spencer Lawrence Baird, . . . . .	Dodge City.
Clarence Alexander Bandel, . . . . .	Wamego.
Nathaniel Eichorn Berry,* . . . . .	Waterville.
Raymond Clair Brown, . . . . .	Watonga, Okla.
Harvey Albert Burgess, . . . . .	Greensburg.
Kathleen Margaret Callaway, . . . . .	Greenleaf.
Carl Donovan Cayot, . . . . .	Westphalia.
John Leo Connolly, . . . . .	Fort Scott.
Michael Francis Cosgrove, . . . . .	Hartford.
Hiram C. Davis,* . . . . .	Wichita.
Claude E. Deming, . . . . .	Westmoreland.
Fred Eugene Dennis, . . . . .	Clovis, N. M.
Edward S. Elder, . . . . .	Dodge City.
Charles Raymond Eyssen, . . . . .	Independence.
Benjamin N. Forbes, jr., . . . . .	Wathena.
Robert Clare Foulston, . . . . .	Wichita.
Moe Lester Friedman, . . . . .	Kansas City, Mo.
James Edmund Grattan, . . . . .	Sedgwick.
Fred Theo. Haddock, . . . . .	Kansas City, Mo.
Leonard Walter Hamner, . . . . .	Hutchinson.
Ferd Benedict Hanlon, . . . . .	Coffeyville.
John Ise, . . . . .	Lawrence.
Walter Ise,* . . . . .	Lawrence.
Ernest Lee Judy, . . . . .	Kansas City.
Louis Reuben Kupfer, . . . . .	Lawrence.
Harold Larson, . . . . .	Vesper.
Maurice O. Lock, . . . . .	Emporia.
Henry Clay Marks, . . . . .	Lawrence.
Arthur Marion McAdams, . . . . .	Salina.
Roy Joseph McMullen, . . . . .	Great Bend.
Thomas Potter Palmer, . . . . .	Wamego.
Clement Arthur Parker, . . . . .	Kansas City, Mo.
William Earl Pepperell, . . . . .	Concordia.
John Byron Power, . . . . .	Lawrence.
Franklyn John Rayfield, . . . . .	Horton.
Robert Johnson Reid, . . . . .	Howard.
John Warren Ross, . . . . .	Webber.
Abram Schulman, . . . . .	Garden City.
Allan Reese Shaw, . . . . .	Coffeyville.
Ray Johnson Shetlar, . . . . .	Conway Springs.
Omer DeWitt Smith, . . . . .	Cawker City.
Ralph Hewitt Smith, . . . . .	Girard.
Verni L. C. Smith, . . . . .	Colby.
Herbert White Stubbs, . . . . .	Lawrence.
Walter G. Thiele,* . . . . .	Lawrence.
Andrew John Thompson, . . . . .	Horton.
Fred Marion Thompson, . . . . .	Herington.
Raymond Etheridge Watson, . . . . .	Kansas City, Mo.
Frank Lancing Wells, . . . . .	Quinlan, Okla.
Joseph Sylvester Wenger, . . . . .	Russell.
Isaac Newton Williams,* . . . . .	Attica.
Harry Lloyd Woods, . . . . .	Fulton.

## PHARMACEUTICAL CHEMIST.

Henry Verner Atchison, . . . . .	Richmond.
Margaret E. Boal, . . . . .	Clifton.
John Andrew Brown, jr., . . . . .	Washington.
Paul Howard Carl, . . . . .	Cherryvale.
Ellis Wesley Cookson, . . . . .	Wichita.
William Sherman Countryman, . . . . .	Wa Keeney.
Robert Kimball Dillingham, . . . . .	Morland.
Ervin Russell Hess, . . . . .	Ottawa.
Floyd Velton Rankin, . . . . .	Clay Center.
Newell Richard Tripp, . . . . .	Lawrence.

## DOCTOR OF MEDICINE.

Bertha Olive Anderson, . . . . .	Lawrence.
John Dinsmore Bigger, . . . . .	Dade City, Fla.
John Brownlee, . . . . .	Hutchinson.
Carl Calvin Culver, . . . . .	Yates Center.
Kate Hardenberg Elting, . . . . .	Ness City.
Charles Edward Gilliland, . . . . .	Kansas City, Mo.
Ralph Waldo Hissem, . . . . .	Ellsworth.
George Edwin Knappenberger, . . . . .	Kingman.
Elmer Allen Myers, . . . . .	Clay Center.
Howard George Norton, . . . . .	Kansas City, Mo.
Robert Elmer Padfield, . . . . .	Hutchinson.
Fred C. Powell, . . . . .	Macksville.
Benton T. Prather, . . . . .	Peabody.
Sam Earl Roberts, . . . . .	Concordia.
Roy Kenneth Smith, . . . . .	Lincoln.
Onnie Earl Stevenson, . . . . .	Kansas City.
Frank Randall Teachenor, . . . . .	Kansas City, Mo.
John Robert Van Atta, . . . . .	Beloit.

## CERTIFICATE FOR GRADUATE NURSES IN MEDICINE AND SURGERY.

Katherine Brown, . . . . .	Hays.
Lora Cummings, . . . . .	Kansas City, Mo.
Ada Myrtle Hamilton, . . . . .	Kansas City, Mo.
Daisy S. Wood, . . . . .	Kansas City, Mo.

## BACHELOR OF SCIENCE IN EDUCATION.

Harry E. Kraus, . . . . .	Alta Vista.
Clarence T. Rice, . . . . .	Marysville.
Edith S. Rice, . . . . .	Marysville.

# ROLL OF STUDENTS.

## Graduate School.

\* Seniors, College or Engineering, who have completed sufficient work for the A. B. or B. S. degree and are doing graduate work.

Abraham, Raymond Clair, A. B. '11, University of Kansas, <i>Mathematics</i> ,	El Dorado.
Aldrich, Maelynne,* A. B. '12, University of Kansas, <i>Greek</i> ,	Salina.
Alexander, Homer A.,* A. B. '12, University of Kansas, <i>Physiology</i> ,	Nickerson.
Andrews, Orrel Marie, A. B. '11, Fairmount College, <i>Entomology</i> ,	Wichita.
Aschmann, Theodore Henry, A. B. '08, McPherson College, A. M. '11, University of Kansas, <i>Medicine</i> ,	Inman.
Bailey, Reginald King, A. B. '11, University of Kansas, <i>Chemistry</i> ,	Lawrence.
Baird, Charles Glenn, A. B. '11, University of Kansas, <i>English, Philosophy</i> ,	Lawrence.
Barnes, Luther, B. S. '08, University of Kansas, <i>Engineering</i> ,	Lawrence.
Beal, Arthur Floyd, A. B. '11, University of Kansas, <i>Physics, Educational Psychology</i> ,	Lawrence.
Beatty, Cora Belle, A. B. '05, College of Emporia, <i>English</i> ,	Osborne.
Beatty, Florence Margaret, A. B., '05, College of Emporia, <i>Latin, Greek</i> ,	Osborne.
Blair, Gilbert Bruce, A. B. '02, Tabor College, A. M. '04, Washburn College, <i>Physics</i> ,	Topeka.
Bohnstengel, Walter, B. S. '10, University of Kansas, <i>Engineering, Chemistry</i> ,	Dodge City.
Bouse, Thornton Lynn, A. B. '10, Kansas State Normal, <i>Mathematics</i> ,	Holton.
Branch, Hazel Elizabeth, A. B. '08, University of Kansas, <i>Entomology</i> ,	Wichita.
Brock, Frank Peterson, B. S. '07, University of Kansas, <i>Chemistry</i> ,	Lawrence.
Brooks, Martin Kahao, A. B. '11, University of Kansas, <i>French</i> ,	Lawrence.
Brower, Lyle Ireneus, B. S. '03, University of Illinois, <i>Education</i> ,	Pittsburg.
Brown, Carl Richards, A. B. '11, University of Kansas, <i>Psychology, Mathematics</i> ,	Norton.
Bruckmiller, Frederick W.,* A. B. '12, University of Kansas, <i>Physical Science</i> ,	Kansas City, Mo.
Carothers, Estella Eleanor, A. B. '11, University of Kansas, <i>Zoology</i> ,	Kingman.
Chesky, Victor Ernest, A. B. '09, University of Kansas, <i>Medicine</i> ,	Nickerson.
Clarke, Ermine Ethel, A. B. '10, University of Kansas, <i>German, French</i> ,	Lawrence.
Colline, Bertha Elizabeth, A. B. '11, McPherson College, <i>English</i> ,	McPherson.
Cowper, Mary Octavine, A. B. ———, A. M., Drury College, <i>Romance Language</i> ,	Lawrence.
Crow, Hallie Ernest, B. S. '10, Haverford College, <i>Zoology</i> ,	Wichita.
Curl, Howard E., A. B. '11, University of Kansas, <i>Bacteriology, Pathology</i> ,	Osborne.



- Derby, Jesse Raymond, A. B., Southwestern College, *English*, Winfield.
- Dershem, Elmer,\* B. S. '12, University of Kansas, *Mathematics*, Baldwin.
- Duer, Guy Robert, A. B. '08, A. M. '09, University of Kansas, *Medicine*, Nickerson.
- Eastman, Walter M.,\* A. B. '12, University of Kansas, *Chemistry*, Lawrence.
- Emery, Walter Titus, A. B. '11, University of Kansas, *Entomology*, Wetmore.
- Faulkner, James Thomas, A. B. '11, University of Kansas, *Physiology, Sociology*, Lansing.
- Ferguson, Harold Joel, A. B. '11, University of Kansas, *Chemistry*, Wichita.
- Ferguson, Myrtle M.,\* A. B. '12, University of Kansas, *German*, Kansas City.
- Fischer, Edward George, A. B., Wheaton College, *Mathematics, Physics*, Wamego.
- Fisher, Robert Richards, B. S. '11, University of Kansas, *Economics, English*, Lawrence.
- Fraser, Roy, A. B. '10, Toronto, *Entomology, English, History*, Galetta, Ontario, Can.
- Gilchrist, Irene Alberta, A. B. '05, University of Kansas, *Latin*, Kansas City, Mo.
- Greenfield, Myrtle, A. B. '11, University of Kansas, *Botany*, Sabetha.
- Gruber, Charles Merl, A. B. '11, University of Kansas, *Biology*, Hope.
- Gunthorp, Horace, A. B., University of Kansas, *Zoology*, Lawrence.
- Haag, Samuel McCarty, A. B., College of Emporia, *Mathematics*, Admire.
- Hall, Ross Emerson, B. S. '11, University of Kansas, *Economics*, Hutchinson.
- Hall-Quest, Alfred Lawrence, A. B., Augustana College, A. M., Princeton, *Education*, Parkville, Mo.
- Hanson, Carl F.,\* B. S. '12, University of Kansas, *Mechanical Engineering*, Geuda Springs.
- Harms, Sophia Gerhardine, A. B. '11, Friends University, *German, English*, Wichita.
- Hartman, Edna F., A. B. Southwestern, *Education*, Winfield.
- Haslam, Thomas Powell, B. S. '08, Kansas Agricultural College, M. S. '10, University of Kansas, *Bacteriology*, Manhattan.
- Hassler, Jasper Ole, A. B., William Jewell College, *Mathematics*, Lawrence.
- Hazlett, O. E., A. B. '10, Southwestern College, *Economics*, Augusta.
- Hiatt, George Robinson, A. B., University of Kansas, *History, Sociology*, Lawrence.
- Hiebert, Peter C., A. B., McPherson College, *English, Education*, Hillsboro.
- Hosford, Ruby Cornelia, A. B. '09, University of Kansas, *Botany*, Lawrence.
- Hull, Blanche Edith, A. B. '10, University of Kansas, *English, Education*, Lawrence.
- Hull, Eva Pearl, A. B. '11, University of Kansas, *Home Economics, Education*, Lawrence.
- Humphrey, Irvin W., A. B. '10, University of Kansas, *Chemistry*, Russell.
- Hungerford, Herbert B., A. B. '11, University of Kansas, *Entomology*, Lawrence.
- Hunt, Claude Judson, A. B. '10, Bethel College, *Anatomy, Chemistry*, Oswego.
- Ise, Hulda Lucile, A. B. '10, University of Kansas, *English*, Lawrence.
- Isely, Dwight, A. B. '10, Fairmount College, *Entomology, Botany*, Wichita.
- Josselyn, Homer Walker, A. B. '05, A. M. '10, University of Michigan, *Education*, Lawrence.
- Kiesewetter, Bruno, ———, *Philosophy, Education*, Berlin, Germany.

- Kleihege, George William, A. B. '02, Kansas Wesleyan, *Education, Psychology*, La Crosse.
- Kraus, Harry Ellsworth, A. B., B. S. in Ed. '11, University of Kansas, *History, Education*, Alta Vista.
- Laptad, Evadne M., A. B. '08, University of Kansas, *German*, Lawrence.
- Lee, Thomas A., A. B. '11, University of Kansas, *Sociology*, Cambridge, Mass.
- Light, Orpha Grace, A. B. '11, University of Kansas, *Latin*, Lawrence.
- Lindsey, Ray Duncan, A. B. '09, A. M. '10, University of Kansas, *Zoölogy*, Cherryvale.
- Logan, William Thomas, A. B., Cumberland University, B. D., *Sociology*, Knob Noster, Mo.
- Mattoon, Edith D., A. B., University of Nebraska, Lawrence.
- Miller, J. Earl, A. B. '10, University of Kansas, *History*, Lawrence.
- Miller, Marie B.,\* A. B. '12, University of Kansas, *English*, Leavenworth.
- Miller, Raymond Foster, A. B., College of Emporia, *Geology*, Emporia.
- Miller, Ruth C.,\* A. B. '12, University of Kansas, *Education*, Pratt.
- Morris, Inez,\* A. B. '12, University of Kansas, *Mathematics*, Tecumseh.
- Myers, John Tennyson, A. B., Washburn College, *Chemistry*, Eskridge.
- McCluggage, Robert Tyler, A. B., Fairmount College, *History*, Derby.
- MacGregor, Hazel Hope, B. S. '06, Yankton, A. M. '09, University of Illinois, *Mathematics*, Yankton, S. Dak.
- Nelson, Alfred Lewis, A. B. '11, Midland College, *Mathematics, Physics*, Troy.
- Nelson, William Gustaf, B. S. '11, Ottawa University, *Engineering*, Ottawa.
- Nesbitt, Charles Rudolph, A. B. '11, University of Kansas, *Economics, Sociology*, Garnett.
- Nichols, William S., A. B. '11, Hanover College, *Medicine*, Arkansas City.
- Olinger, Stanton, A. B., McCormick Seminary, Princeton, *Sociology*, Lawrence.
- Passon, Rebecca,\* A. B. '12, University of Kansas, *German*, Lawrence.
- Porterfield, Roy Albert, B. S. '11, University of Kansas, *Mathematics*, Holton.
- Power, Archie Dayton, B. S. '10, Baker University, *Engineering*, Baldwin.
- Ragsdale, Evalyn,\* A. B. '12, University of Kansas, *History*, Lawrence.
- Regier, Cornelius C., A. B. '11, University of Kansas, *History*, Moundridge.
- Riesen, Emil R., A. B. '09, University of Kansas, *German*, Newton.
- Riggs, Henry Clay, A. B. '93, University of Kansas, *Education*, Lawrence.
- Robinson, James Gordon, A. B., Cooper College, *Chemistry*, Viola.
- Rose Donna Clare, A. B., Washburn College, *English, Latin, Greek*, Holton.
- Rufener, Louis August, A. B. '11, University of Kansas, *Sociology, Economics*, Abilene.
- Ruhlandt, Bernice M.,\* A. B. '12, University of Kansas, *Mathematics*, Osawatomie.
- Sankee, Patti,\* A. B. '12, University of Kansas, *Latin*, Lawrence.
- Schnacke, Francis Dean, A. B. '11, University of Kansas, *Economics*, McPherson.
- Sears, Burton P., A. B. '08, A. M. '09, University of Kansas, *History*, Lawrence.
- Siegel, Margaret,\* A. B. '12, University of Kansas, *English*, Kansas City, Mo.

Smith, Edna M.,* A. B. '12, University of Kansas, <i>History</i> ,	Smith Center.
Smith, Frederick M., B. S. '98, Graceland College, A. M. '11, University of Kansas, <i>Sociology</i> ,	Independence, Mo.
Steven, Effie Louise, A. B. '11, University of Kansas, <i>Education</i> ,	Lawrence.
Stevens, Lois Elizabeth, A. B. '11, University of Kansas, <i>Education, English</i> ,	Lawrence.
Streeter, Floyd Benj., A. B. '11, University of Kansas, <i>History</i> ,	Hesston.
Stuart, Geraldine, A. B. '07, University of Kansas, <i>History</i> ,	Lawrence.
Taylor, Edward H.,* A. B. '12, University of Kansas, <i>Zoölogy</i> ,	Richmond.
Thompson, Earl L., A. B., Kansas State Normal, <i>Mathematics</i> ,	Colony.
Tilberg, Wilbur Emanuel, A. B., Bethany College, <i>History</i> ,	Dwight.
Trickey, John Paul, B. S. '09, New Hampshire University, <i>Chemistry</i> ,	Lawrence.
Trump, Frank Austin, A. B. '11, University of Kansas, <i>Chemistry, Anatomy</i> ,	Formoso.
Van Vickie, Harriet Anna, A. B. '07, Baker University, <i>English</i> ,	Baldwin.
Vawter, Will Elbert, B. S. '11, University of Kansas, <i>Chemistry</i> ,	Osawatomie.
Weaver, Harry E.,* A. B. '12, University of Kansas, <i>Chemistry</i> ,	Belleville.
Weidlein, Edward Ray, A. B. '10, A. M. '10, University of Kansas, <i>Chemistry</i> ,	Augusta.
Weith Archie James, B. S. '08, University of Kansas, <i>Industrial Chemistry</i> ,	Iola.
Wenrich, David Henry, A. B. '11, University of Kansas, <i>Zoölogy</i> ,	Lawrence.
Wesley, John Bliss, A. B., Southwestern College, <i>Chemistry</i> ,	Stafford.
Wheeler, John Jefferson, A. B., Indiana University, <i>Mathematics</i> ,	Wichita.
Wilburn, Homer, A. B. '10, University of Kansas, <i>Medicine</i> ,	Lawrence.
Williams, Francis Xavier, A. B., Leland Stanford University, <i>Entomology, Geology</i> ,	Lawrence.
Wilson, Matthew H., B. S. '04, Belleview College, <i>Philosophy</i> ,	Parkville, Mo.
Wilson, Orville Turner, A. B., College of Emporia, <i>Botany</i> ,	Emporia.

GRADUATES, 122.

## Graduate Students, Summer Session, 1911.

Abbott, Alice, A. B. '10, Ottawa University, <i>Modern Language</i> ,	Oxford.
Bliss, Marguerite, A. B. '07, Fairmount College, <i>History</i> ,	Wichita.
Booth, Ida L., A. B. '07, Baker University, <i>English</i> ,	Barclay.
Boyd, Ellinor F., A. B. '11, University of Kansas, <i>English</i> ,	Independence.
Briggs, Ruby I., A. B. '11, University of Kansas, <i>English</i> ,	Lawrence.
Clark, Eva Gill, A. B. '95, Baker University, A. M. '04, University of Kansas, <i>Latin</i> ,	Alma.
Coe, John E., A. B. '05, College of Emporia, <i>Chemistry</i> ,	Lawrence.
Foulk, M. Pearl, A. B. '08, Campbell College, <i>German, English</i> ,	Holton.
Gibson, Admund J., A. B. '11, University of Kansas, <i>History, English</i> ,	McCune.
Green, Wyman R., A. B., A. M. '11, University of Kansas, <i>Zoölogy</i> ,	Mutual, Okla.

- Griffin, Edward, A. B. '10, University of Kansas, *Chemistry, Shop, Drawing*, Lawrence.
- Hackbush, Florentine, A. B. '11, University of Kansas, *Latin*, Leavenworth.
- Hague, Florence S., A. B. '11, University of Kansas, *Education*, Lawrence.
- Hardy, Charles O., — '10, University of Chicago, *History, Sociology*, Ottawa.
- Hillis, F. P., A. B. '09, Baker University, *History, Sociology*, Manhattan.
- Ise, John, Mus. B. '08, A. B. '10, LL. B. '11, University of Kansas, *Sociology*, Lawrence.
- Jennings, Henry B., A. B. '09, College of Emporia, *Entomology*, McPherson.
- Johnson, Clifford P., M. D., A. B. '11, University of Kansas, *Zoölogy*, Coffeyville.
- Johnson, Lucetta, A. B. '04, McPherson College, *English*, Wichita.
- Jones, Louis T., B. S. '06, Wilmington College, *History*, Oskaloosa, Iowa.
- Kent, Mabel, A. B. '06, University of Kansas, *Latin*, Lawrence.
- Kent, Mattie, A. B. '08, University of Kansas, *German*, Lawrence.
- Kiser, Florence, A. B. '07, University of Kansas, *History*, Lawrence.
- Lloyd, Mary, B. S. '05, Midland College, *Mathematics*, Atchison.
- Loomis, Arthur K., A. B. '09, Baker University, *Education, English*, Oswego.
- Malleis, Otto, A. B. '12, University of Kansas, *Chemistry*, Halstead.
- Maris, Mary A., A. B. '09, University of Kansas, *English, Education*, Cloverdale.
- Moore, Lelia Z., A. B. '06, Campbell College, *English, Latin*, Holton.
- Moore, Merle M., B. S. '10, Ottawa University, *Chemistry*, Ottawa.
- Muchmore, Clyde, A. B. '10, Southwestern College, *Education, History*, Winfield.
- Mack, James B., A. B. '09, University of Chicago, *Zoölogy*, University Park, Iowa.
- Olson, Henry N., A. B. '01, Bethany College, *Mathematics*, Lindsborg.
- Patrick, Leslie R., B. S. '10, Ottawa University, *Education*, Agricola.
- Phillips, John F., A. B., Southwestern College, *Mathematics*, Winfield.
- Radell, Tressa C., A. B. '09, University of Kansas, *Latin, German*, Pittsburg.
- Reed, J. C., A. B. '10, Kansas Wesleyan, *Education, Botany*, Lawrence.
- Smith, M. Frances, A. B. '09, Nickerson College, *Latin*, Sterling.
- Stanton, Guy K., B. S. '06, Hiram College, *Zoölogy*, Enid, Okla.
- Sterling, Eugenia, A. B. '09, University of Kansas, *Zoölogy*, Lawrence.
- Stone, Sadie M., A. B. '95, A. M. '11, University of Kansas, *English*, Lawrence.
- Thompson, Martha A., A. B. '92, University of Kansas, *Latin*, Kansas City.
- Titus, R. W., A. B. '10, Cornell University, *Education, Physics*, Dodge City.
- Withington, Charles H., B. S. '06, M. S. '08, Kansas State Agricultural College, *Entomology*, Lawrence.
- Wyeth, Addy B., A. B. '05, Park College, *English, Education*, Lawrence.
- Young, Benjamin P., B. S. '10, University of Kansas, *Education, Mathematics*, Halstead.



## The College.

## SENIORS.

Adams, Eldridge Stevens, . . . . .	Atchison.
Aldrich, Maelynette, . . . . .	Salina.
Alexander, Homer Augustus, . . . . .	Nickerson.
Ammons, Earl F., . . . . .	Arkansas City.
Angle, Brownie, . . . . .	Kansas City.
Armsby, Carleton H., . . . . .	Council Grove.
Armstrong, Nan Ruth, . . . . .	Lawrence.
Arnold, Lucille Margaret, . . . . .	Ashland.
Babb, Carolyn Isabel, . . . . .	Wichita.
Baker, Lily Gazzelle, . . . . .	Cherryvale.
Baumgartner, Rachel, . . . . .	Newton.
Berger, Harry Calvin, . . . . .	Halstead.
Beyer, Adolph H., . . . . .	Inman.
Biddison, Marcia Dorothea, . . . . .	Goodland.
Bischoff, George Dietrich, . . . . .	Washington.
Black, Elva Marian, . . . . .	Ottawa.
Brook, Bessie Cable, . . . . .	Blue Mound.
Brothers, Edmon Q., . . . . .	Winfield.
Brownlee, Harold Joseph, . . . . .	Sterling.
Bruckmiller, Frederick William, . . . . .	Kansas City, Mo.
Brumage, Everett, . . . . .	Beloit.
Burdick, Helen Salisbury, . . . . .	Lawrence.
Butler, Walter Albert, . . . . .	Bird City.
Butts, Hazel Ida, . . . . .	Wichita.
Calene, Leona Camilla, . . . . .	Sylvan Grove.
Cannon, Carl Leslie, . . . . .	Smith Center.
Carmichael, Fay, . . . . .	Lawrence.
Carmichael, Madge, . . . . .	Lawrence.
Carpenter, Weston William, . . . . .	Lawrence.
Carter, Ledrue Garld, . . . . .	Lawrence.
Colin, Edward Cecil, . . . . .	Argonia.
Crawford, Villa, . . . . .	Lawrence.
Curtiss, Bessie Irene, . . . . .	Lawrence.
Dack, Bertha Louise, . . . . .	Lyons.
Dalton, Nellie Marvin, . . . . .	Lawrence.
Danskin, Floyd Brown, . . . . .	Aulne.
David, M. Christina, . . . . .	Bonner Springs.
Davidson, Ellis Webb, . . . . .	Lawrence.
David, Don Louis, . . . . .	Kansas City.
Davis, Frank E., . . . . .	Lawrence.
Davis, Philip L., . . . . .	Lawrence.
Degen, Esther, . . . . .	Kansas City, Mo.
Dellinger, Rudolph Corley, . . . . .	Garnett.
Dittmar, Elmer H., . . . . .	Clay Center.
Dolbee, Myrtle Elizabeth, . . . . .	Lawrence.
Dolman, Katherine, . . . . .	Lawrence.
Draper, Mary Eleanor, . . . . .	Oswego.
Earnest, Clarence, . . . . .	Washington.
Eastman, Walter Maynard, . . . . .	Lawrence.
Elliott, Gladys Elizabeth, . . . . .	Lawrence.
Elliott, Harry Houlette, . . . . .	Lawrence.
Ellis, Dena Hope, . . . . .	Lawrence.
Ellis, Katherine, . . . . .	Pratt.
Ewald, Paul Peter, . . . . .	Lawrence.
Ewers, Edmond Everett, . . . . .	Sedan.
Fairchild, Charles Clement, . . . . .	Lawrence.
Farnsworth, Chester George, . . . . .	Wichita.
Ferguson, Myrtle May, . . . . .	Kansas City.
Figley, Angeline, . . . . .	Lawrence.
Figley, Gertrude, . . . . .	Lawrence.
Fisher, Nancy Marie, . . . . .	Lyons.
Fleming, Louise, . . . . .	Tecumseh.

SENIORS—*continued.*

Foncannon, Frank, . . . . .	Emporia.
Ford, Herbert Ezra, . . . . .	Lawrence.
French, Will, . . . . .	Pittsburg.
Garrett, Irene May, . . . . .	Lawrence.
Gephart, Jesse T., . . . . .	Oskaloosa.
Gossett, Gale Galbaugh, . . . . .	Kansas City, Mo.
Greenfield, Myrtle, . . . . .	Sabetha.
Griffin, Alfred Alford, . . . . .	Lawrence.
Griffiths, Glendale, . . . . .	Lawrence.
Gustafson, Tekla Cecelia, . . . . .	Lawrence.
Haight, Edith Irene, . . . . .	McPherson.
Hall, Jean George, . . . . .	Waterville.
Hanson, Anna Hansine, . . . . .	Lawrence.
Heavey, Elizabeth, . . . . .	Leavenworth.
Heil, Roy Harrison, . . . . .	Topeka.
Henshall, James Edgar, . . . . .	Osborne.
Hill, Helen, . . . . .	Oswego.
Hoffman, Robert Lee, . . . . .	Ellsworth.
Hoffman, Walter Leonard, . . . . .	Enterprise.
Hood, Theodore Gilbert, . . . . .	Kiowa.
Humphrey, Arthur Spencer, . . . . .	Junction City.
Humphrey, Myrtle, . . . . .	Russell.
Hyre, Myrtle Ethel, . . . . .	Lawrence.
Ingels, Pauline, . . . . .	Lawrence.
Ise, Mary, . . . . .	Lawrence.
Johnson, Delpha Victoria, . . . . .	Randolph.
Johnson, John Carlisle, . . . . .	Formoso.
Johnson, Mina Rae, . . . . .	Norton.
Johnston, Marion Minneola, . . . . .	Lawrence.
Kellerman, Lucile, . . . . .	Kansas City, Mo.
Killarney, Margaret, . . . . .	Atchison.
Kingsley, Arthur Robert, . . . . .	Formoso.
Kliewer, Herman Schmidt, . . . . .	Newton.
Kohman, Edward Frederick, . . . . .	Dillon.
Krueger, Alfred Paul, . . . . .	Atchison.
Kubik, Charles Loucek, . . . . .	Caldwell.
Laughlin, Kendall, . . . . .	Kansas City, Mo.
Layne, Zephyr Cedonia, . . . . .	Argentine.
Lee, Robert Elias, . . . . .	Lawrence.
Lehman, Harvey C., . . . . .	Humboldt.
LeMoine, Albert Napoleon B., . . . . .	Concordia.
Lentz, Leotos, . . . . .	Belle Plaine.
Leventhal, Benjamin Heim, . . . . .	Rosedale.
Lupton, Claribel Lytle, . . . . .	Lawrence.
Malleis, Otto, . . . . .	Halstead.
Mallory, Arthur Ernest, . . . . .	Ottawa.
Manley, Anna Robbins, . . . . .	Junction City.
Manley, Mildred Maurine, . . . . .	Iola.
March, Lucie Miles, . . . . .	Lawrence.
Martindale, Nell Minnette, . . . . .	Lawrence.
Maxwell, Herbert Spencer, . . . . .	Braddyville, Iowa.
Maynard, Rubey May, . . . . .	Kansas City, Mo.
Mensch, George Egbert, . . . . .	Kansas City.
Meyers, Orell Grace, . . . . .	Olathe.
Miller, Marie Blanche, . . . . .	Leavenworth.
Miller, Ruth Cornelia, . . . . .	Pratt.
Miller, Warren Mahlon, . . . . .	Sabetha.
Miller, William Vernon, . . . . .	Emporia.
Mix, Bertha Ethel, . . . . .	Tecumseh.
Moore, Leland Wightman, . . . . .	Ottawa.
Moore, Oreta Elizabeth, . . . . .	Lawrence.
Moore, Will Andrew, . . . . .	Chapman.
Morris, Carrie Agnes, . . . . .	Oklahoma City, Okla.
Morris, Inez, . . . . .	Tecumseh.
Morrow, Lena Marie, . . . . .	Washington.
Morse, Florence Emera, . . . . .	Lawrence.
Morton, Winifred, . . . . .	Atchison.
Moses, Arthur C., . . . . .	Kansas City, Mo.
Mosser, Lloyd H., . . . . .	Hamlin.

SENIORS—*continued.*

Moys, Fay Cecilia, . . . . .	Lawrence.
Murphy, Beulah Violet, . . . . .	Lawrence.
Murray, Oscar Roy, . . . . .	Herington.
McFarlin, Leota Lovina, . . . . .	Lawrence.
McKay, Donald, . . . . .	Girard.
McKittrick, Bessie Jane, . . . . .	Wilson.
Naylor, Rhoda Sarah, . . . . .	Holton.
O'Roke, Earl Cleveland, . . . . .	Sabetha.
Osgood, Clara Louise, . . . . .	Parsons.
Parker, John Bowman, . . . . .	Altoona.
Passon, Rebecca, . . . . .	Lawrence.
Phelan, Susie, . . . . .	Holyrood.
Ragsdale, Evalyne, . . . . .	Smith Center.
Rankin, Roy, . . . . .	Lawrence.
Redmond, Roscoe Royal, . . . . .	Ottawa.
Richardson, Jennie May, . . . . .	Lawrence.
Rodebush, Worth Huff, . . . . .	Selden.
Rogers, Myra, . . . . .	Abilene.
Rossman, Mae Florence, . . . . .	Paola.
Ruhlandt, Bernice May, . . . . .	Osawatomie.
Sankee, Patti, . . . . .	Lawrence.
Sawhill, John Elden, . . . . .	Concordia.
Schmitt, Edwin C., . . . . .	Moundridge.
Sellards, Bertha, . . . . .	Lawrence.
Sheppard, Cyril E., . . . . .	Wellsville.
Shive, John Wiseman, . . . . .	Burrton.
Shklar, Tillie, . . . . .	Kiowa.
Siegel, Margaret, . . . . .	Kansas City, Mo.
Simms, Julia Anna, . . . . .	Kansas City, Mo.
Small, Edward Lorenzo, . . . . .	Cottonwood Falls.
Smart, Euphemia Mary, . . . . .	Ottawa.
Smith, Edna Maude, . . . . .	Smith Center.
Smith, Elsie Louise, . . . . .	Leavenworth.
Smith, Gordon, . . . . .	Lawrence.
Smith, Roy Esmond, . . . . .	Winchester.
Snoddy, George Samuel, . . . . .	Emporia.
Spalding, Jeannette, . . . . .	Kansas City, Mo.
Sparr, Helen Mary, . . . . .	Lawrence.
Stephens, Nelson Timothy, . . . . .	Lawrence.
Sterling, Hermione Archer, . . . . .	Lawrence.
Stevens, Helen Katherine, . . . . .	Parsons.
Stewart, John Thos., . . . . .	Wellington.
Stone, Ethel Lucile, . . . . .	Emporia.
Stuckey, George Harr, . . . . .	Formoso.
Swanson, Arthur Theodore, . . . . .	Randolph.
Swick, Emily Leora, . . . . .	Abilene.
Taylor, Edward Harrison, . . . . .	Richmond.
Thomas, Isabel Perkins, . . . . .	Kansas City, Mo.
Thomson, Helen Houghton, . . . . .	Emporia.
Tucker, Amy Elizabeth, . . . . .	Wichita.
Tupper, Catherine, . . . . .	Lawrence.
Ulrich, Grace Pauline, . . . . .	Lawrence.
Ulrich, Mabel Grace, . . . . .	Lawrence.
VanEman, Andrew Stacey, . . . . .	Leavenworth.
Vaughn, Everett Waldo, . . . . .	Wellington.
Walker, Josephine, . . . . .	Holton.
Wallace, Florence Ada, . . . . .	Phillipsburg.
Walton, Nan Edgarine, . . . . .	Leavenworth.
Ward, Frank B., . . . . .	Kansas City.
Weaver, Harry Eugene, . . . . .	Belleville.
Wetmore, Frank Alexander, . . . . .	Lawrence.
Wheeler, LeRoy Jay, . . . . .	Wa Keeney.
Wheeler, Mayme, . . . . .	Guthrie, Okla.
Wiley, Gertrude, . . . . .	Arkansas City.
Wilkie, Grace, . . . . .	Wichita.
Winkins, Harry, . . . . .	Chapman.
Wilkinson, Lucile Hortense, . . . . .	Muskogee, Okla.
Wilson, Elizabeth Kreps, . . . . .	Kansas City, Mo.
Wilson, Taylor Scott, . . . . .	Wichita.

## SENIORS—concluded.

Withington, Georgia Edna, . . . . .	Lawrence.
Woodman, Sidney M., . . . . .	Netawaka.
Woodruff, Regina, . . . . .	Lawrence.
Woolsey, Carrie I., . . . . .	Lawrence.

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## JUNIORS.

Allison, Ray Gilbert, . . . . .	Clay Center.
Abraham, Sylvia, . . . . .	Kansas City, Mo.
Adams, George Gambriel, . . . . .	Baxter Springs.
Anderson, Clara, . . . . .	Garland.
Anderson, Mabel May, . . . . .	Gas.
Athay, Roland Milton, . . . . .	Kiowa.
Atkinson, Vera, . . . . .	Lawrence.
Babb, Alvin Leroy, . . . . .	Lawrence.
Babb, George Reuben, . . . . .	Lawrence.
Baker, Edward Sherman, jr., . . . . .	Kansas City.
Banker, Frances Almona, . . . . .	Russell.
Barnard, Florence M., . . . . .	Osawatomie.
Bates, Laura Fidelia, . . . . .	Garden City.
Beamer, Raymond, . . . . .	Lawrence.
Bechtold, Anna Dorothea, . . . . .	Lawrence.
Beck Gladys, . . . . .	Kansas City.
Bideau, Edith Mae, . . . . .	Chanute.
Black, Florence Lucile, . . . . .	Lawrence.
Black, Floyd Davidson, . . . . .	Severy.
Black, Frances Inez, . . . . .	Lawrence.
Bossi, John Trentini, . . . . .	Arkansas City.
Bozell, Bessie Marie, . . . . .	Beloit.
Brown, Helen E., . . . . .	Delphos.
Brown, Lois Rose, . . . . .	Troy.
Broyles, Glen Hunt, . . . . .	Bethany.
Brunner, Ellen Mildred, . . . . .	Onaga.
Buchanan, Nellie Reece, . . . . .	Lawrence.
Bunn, Zippa Lorraine, . . . . .	Lawrence.
Burkholder, William Miesse, . . . . .	Marion.
Burnett, Helen, . . . . .	Hymer.
Burrough, Phyllis Marguerite, . . . . .	Rosedale.
Butcher, Estelle Vee, . . . . .	Sedan.
Buzick, William Alonson, . . . . .	Sylvan Grove.
Calene, Glenn Clifton, . . . . .	Sylvan Grove.
Campbell, John Ross, . . . . .	Meade.
Carson, Frank L., . . . . .	Ashland.
Chesky, Frank Herbert, . . . . .	Nickerson.
Claasen, Peter Walter, . . . . .	Hillsboro.
Clark, Gladys Ruth, . . . . .	Fredonia.
Clark, Hazel Blanche, . . . . .	Kansas City, Mo.
Cook, Fern Alice, . . . . .	Wellington.
Cotter, Georgia Jane, . . . . .	Kansas City, Mo.
Coxedge, Lina, . . . . .	Parsons.
Croan, Melvin, . . . . .	Kincaid.
Crum, Errett Ross, . . . . .	Munden.
Cullison, Walter V., . . . . .	Buffalo.
Dale, LaVergne, . . . . .	Lawrence.
Dalton, Beatrice, . . . . .	Lawrence.
Darland, Mary Edna, . . . . .	Lawrence.
Darraha, Margaret Rebecca, . . . . .	McPherson.
Daum, Bessie, . . . . .	Greensburg.
Daum, Kate, . . . . .	Greensburg.
Davidson, Helen Irene, . . . . .	Lawrence.
Davidson, Throck Martin, . . . . .	Wichita.
Davis, Eugene Wilson, . . . . .	Chapman.
Degen, Helen, . . . . .	Kansas City, Mo.
Dodge, Clyde Arnold, . . . . .	Kansas City, Mo.
Donnelly, Ina Beatrice, . . . . .	Kansas City, Mo.
Drake, Paul McCheyne, . . . . .	New Plymouth, Idaho.
Dunaway, Elizabeth, . . . . .	Oswego.
Dunbar, Carl Owen, . . . . .	Hallowell.
Dunlevy, Mabel Mary, . . . . .	Parsons.



JUNIORS—*continued.*

Dupree, Louise M., . . . . .	Topeka.
Edwards, Wayne, . . . . .	Chapman.
Eisele, Henry Gottlieb, . . . . .	Eudora.
Estep, Alma Ruth, . . . . .	Kansas City, Mo.
Evans, Esther Preston, . . . . .	Lawrence.
Ferguson, William Ward, . . . . .	Olathe.
Fessenden, Ersel Meal, . . . . .	Emporia.
Fisher, Winifred Cora, . . . . .	Lawrence.
Fleeson, Elizabeth Helen, . . . . .	Sterling.
Flinn, Ruby Vee, . . . . .	Chanute.
Forbes, Annie, . . . . .	Wathena.
Fretz, Daisy, . . . . .	Pratt.
Fuller, Mary McCrea, . . . . .	Eudora.
Goldman, Irma, . . . . .	Kansas City, Mo.
Gorsuch, Cecil Otis, . . . . .	Sharon Springs.
Greenlees, Nellie Louise, . . . . .	Lawrence.
Greer, Mary Estellene, . . . . .	Kansas City, Mo.
Hadley, Helena, . . . . .	Glen Elder.
Hamilton, Sandy, . . . . .	Columbus.
Harger, Lois, . . . . .	Abilene.
Harper, Iva Belle, . . . . .	Lawrence.
Hawes, Charles Earle, . . . . .	Augusta.
Hazzard, Lawrence Rosseau, . . . . .	Wichita.
Hill, Charles Albert, . . . . .	Moline.
Hite, Ora Floy, . . . . .	Merriam.
Hobson, Asher John, . . . . .	Lawrence.
Hodder, Frederika, . . . . .	Lawrence.
Hornbaker, Clyde O., . . . . .	Castleton.
Hoskins, Elmer Ray, . . . . .	Dorrance.
Houghton, James Henry, . . . . .	Lawrence.
Housholder, Vale Imogen, . . . . .	Columbus.
Houston, Ethel Blanche, . . . . .	Wichita.
Hoyt, Homer, . . . . .	Argentine.
Hungate, Mary Taylor, . . . . .	Conway Springs.
Jacobs, John Frederick, . . . . .	Athol.
Jensen, Howard Eikenberry, . . . . .	Herington.
Johansen, James Walter, . . . . .	Codell.
Johnson, Everett Wallace, . . . . .	Coffeyville.
Johnson, Flaude Eddy, . . . . .	Lawrence.
Jones, Ethel Anna, . . . . .	Chanute.
Jordan, Warren Harper, . . . . .	Caldwell.
Kennedy, Elizabeth Margaret, . . . . .	Lawrence.
Ketchum, Harold J., . . . . .	Lawrence.
Ketchum, Pauline, . . . . .	Lawrence.
Kimel, Chester LeRoy, . . . . .	Clearwater.
Kincaid, Flossie, . . . . .	Lawrence.
Krehbiel, Carl Clifford, . . . . .	Moundridge.
Laming, Edith, . . . . .	Tonganoxie.
Lawrence, James Frank, . . . . .	Lawrence.
Leasure, Fred Jay, . . . . .	La Cygne.
Leisy, Ernest Erwin, . . . . .	Moundridge.
Liston, Odus, . . . . .	Altamont.
Lobsitz, Blanch, . . . . .	Perry, Okla.
Long, Francis Honeymen, . . . . .	Madison.
Lovejoy, Edith Emeline, . . . . .	Lawrence.
Luce, Mira Hayes, . . . . .	Kansas City, Mo.
Maddux, Walter Henry, . . . . .	Kansas City.
Malott, Anne Caroline, . . . . .	Abilene.
Marak, Mary Magdalen, . . . . .	Halstead.
Marsh, George Park, . . . . .	Kansas City.
Mavity, Della, . . . . .	Lyndon.
Meissner, Charles Albert, . . . . .	Lawrence.
Meissner, Lawrence Ferdinand, . . . . .	Lawrence.
Miller, Alfa, . . . . .	Lawrence.
Miller, Harry Edward, . . . . .	Eudora.
Minor, Milton Carlisle, . . . . .	Douglass.
Mitchell, Young Oscar, . . . . .	Tulsa, Okla.
Moody, Floyd Emert, . . . . .	Fort Scott.
Moore, Karl Emil, . . . . .	Inman.

## JUNIORS—continued.

Morrison, Sarah, . . . . .	Kansas City, Mo.
Moser, Minnie Teresa, . . . . .	Blue Rapids.
Moses, Genevieve Kathleen, . . . . .	Carthage, Mo.
Myers, Dessie Theo, . . . . .	Lawrence.
McArthur, John Cecil, . . . . .	Walton.
McCammon, Leah Constance, . . . . .	Lawrence.
McCormick, Clarence, . . . . .	Arkansas City.
McCreath, Catherine Elizabeth, . . . . .	Lawrence.
McCreath, Frances Christina, . . . . .	Lawrence.
McCulloch, Irene Agnes, . . . . .	Frankfort.
McCune, Carrie Loleta, . . . . .	Leavenworth.
McGill, Lucien Robert, . . . . .	Hill City.
McKinley, Walter Jay, . . . . .	Columbus.
McLellan, Marguerite Helen, . . . . .	Lawrence.
McMillin, Harrison, . . . . .	Arkansas City.
McNeal, Oattie, . . . . .	Norcatour.
Neumuller, Beatrice, . . . . .	Kansas City, Mo.
Nowlin, Mabel Ruth, . . . . .	Kansas City, Mo.
Painter, William Clymer, . . . . .	Peculiar, Mo.
Patterson, Oliver Wellington, jr., . . . . .	Lawrence.
Payne, Florence Mary, . . . . .	Lawrence.
Pendleton, Emma Helen, . . . . .	Lawrence.
Potter, Earl, . . . . .	Salina.
Pratt, Ina Marian, . . . . .	Lawrence.
Pyle, Helen M., . . . . .	Hiawatha.
Ransom, Helen Maud, . . . . .	Lawrence.
Reding, Mary Gertrude, . . . . .	Lawrence.
Reed, Mildred Barnhart, . . . . .	Lawrence.
Rose, Helen, . . . . .	Rosedale.
Savage, Anna Elizabeth, . . . . .	Lawrence.
Schloss, Hazel Estelle, . . . . .	Atchison.
Schwein, Bertha Olivia, . . . . .	Lawrence.
Sellers, Robert Lawrence, . . . . .	Paola.
Share, James Temple, . . . . .	Fort Scott.
Sharp, Elwood Armstrong, . . . . .	Council Grove.
Sieder, Hulda Sophie, . . . . .	Enterprise.
Smith, Ina Elizabeth, . . . . .	Lawrence.
Smith, Inez Frances, . . . . .	Lawrence.
Smyth, Jessie Miriam, . . . . .	Eureka.
Soper, Ray Jordan, . . . . .	Hutchinson.
Starns, Olive, . . . . .	Basehor.
Stewart, Theodosia, . . . . .	Hazelton.
Stiensmeyer, Charles George, . . . . .	Leavenworth.
Syfert, Alva Clyde, . . . . .	Ashton.
Taylor, Bess Clara, . . . . .	Lawrence.
Taylor, Genevieve, . . . . .	Iola.
Taylor, Grace Joy, . . . . .	Lyons.
Thomas, Mary Eleanor, . . . . .	Emporia.
Thomas, Robert Hodgens, . . . . .	Highland.
Twyman, George Thomas, . . . . .	Independence, Mo.
Van Doren, Ruth, . . . . .	Kansas City, Mo.
Walker, Guy R., . . . . .	Hutchinson.
Ward, Roscoe, . . . . .	Belleville.
Weaver, Ross Eberhardt, . . . . .	Concordia.
Weldon, Virginia Aletha, . . . . .	Olathe.
Wellhouse, Walter Housley, . . . . .	Topeka.
Welsh, Rex Earl, . . . . .	Clifton.
Whitney, Elmer Lemuel, . . . . .	Talmage.
Wilber, Allen Sage, . . . . .	Kansas City.
Wiley, Geneva Pauline, . . . . .	Emporia.
Williams, John Alexander, . . . . .	Lawrence.
Wingert, Florence M., . . . . .	Kansas City, Mo.
Wineinger, William W., . . . . .	White Cloud.
Wood, Rachel Adah, . . . . .	Concordia.
Woodruff, Elizabeth Opal, . . . . .	Lawrence.
Yates, Lucile L., . . . . .	Junction City.
Young, Marian Drusilla, . . . . .	Independence.
Zimmerman, Reba Mary, . . . . .	Lawrence.

## SOPHOMORES.

Abels, Edwin Fred, . . . . .	Eudora.
Addison, Beula Dundena, . . . . .	Kansas City, Mo.
Allen, Charles Curtis, . . . . .	Lawrence.
Allen, Harold Murray, . . . . .	Kansas City, Mo.
Allphin, Helen Louise, . . . . .	Lawrence.
Anderson, Bertha Andentia, . . . . .	Independence, Mo.
Anderson, Bessie May, . . . . .	Lawrence.
Arnett, Ila Maud, . . . . .	Lawrence.
Atkinson, Adrienne, . . . . .	Lawrence.
Ayer, May Carr, . . . . .	Kansas City, Mo.
Ayers, Rose Emily, . . . . .	Parsons.
Badger, Chester Anson, . . . . .	Overbrook.
Bailey, Bonnie Deane, . . . . .	Lawrence.
Barger, Lucy Agnes, . . . . .	Beloit.
Beamer, Marion Ross, . . . . .	Parsons.
Beard, Ralph Roy, . . . . .	Paola.
Beardsley, Cecil Miles, . . . . .	Russell.
Beatty, Martha Annette, . . . . .	Lawrence.
Beauchamp, Wilbur Lee, . . . . .	Holton.
Bechtel, Eva, . . . . .	Hiawatha.
Bechtold, Edmund Carl, . . . . .	Lawrence.
Bennett, Emmet Leslie, . . . . .	Plains.
Berger, Emily V., . . . . .	Halstead.
Beyer, Melinda Lynn, . . . . .	Inman.
Bigelow, Edna Nadine, . . . . .	Gardner.
Boddington, Edward Mozley, . . . . .	Kansas City.
Boice, Frederick Garner, . . . . .	Galena.
Bossi, Mary Pauline, . . . . .	Arkansas City.
Bowler, Joseph Lyndel, . . . . .	Kansas City.
Boynton, Roland Elmer, . . . . .	Lawrence.
Branine, Harold R., . . . . .	Hutchinson.
Brown, Clarence Albert, . . . . .	Pittsburg.
Brown, William Fayette, . . . . .	Lawrence.
Buchanan, Elma Ruth, . . . . .	Lawrence.
Butts, Berenice Aileen, . . . . .	Wichita.
Cady, Fanny Alberta, . . . . .	Lawrence.
Campbell, Andrew Parkhurst, . . . . .	Fort Scott.
Campbell, Daniel Halstead, . . . . .	Tulsa, Okla.
Case, Edith May, . . . . .	Kansas City, Mo.
Castle, Clarence Austin, . . . . .	St. Joseph, Mo.
Castles, John Edgar, . . . . .	Fort Morgan, Colo.
Caton, Candace Orene, . . . . .	Concordia.
Chase, Zula, . . . . .	Hutchinson.
Chisham, Faye Florence, . . . . .	Atchison.
Clark, Edna M., . . . . .	Smith Center.
Clark, Elmer Clinton, jr., . . . . .	Oswego.
Clauser, John Milton, . . . . .	Denver, Colo.
Colin, Galen Cyril, . . . . .	Argonia.
Cook, Hale Scoville, . . . . .	Kansas City, Mo.
Cox, Elizabeth, . . . . .	Wellsville.
Crawford, Annabelle, . . . . .	Lawrence.
Crawford, R. Harold, . . . . .	Lawrence.
Cressman, Ada Beatrice, . . . . .	Lawrence.
Crowley, Esther May, . . . . .	Lawrence.
Culp, Lucy, . . . . .	Lawrence.
Curran, Idress, . . . . .	Lawrence.
Dale, Kirke Woodford, . . . . .	Cedar Vale.
Dart, Raymond Osborne, . . . . .	Kansas City.
Davis, Eugene Frank, . . . . .	Kansas City.
Davis, Leo Lloyd, . . . . .	Colby.
Davis, Robert Crenshaw, . . . . .	Kansas City.
Dingee, Minnie Elizabeth, . . . . .	Minneapolis.
Dinsmore, Robert Scott, jr., . . . . .	Troy.
Dixon, Harry William, . . . . .	Kansas City.
Dixon, Otto, . . . . .	Mound Valley.
Drake, Esther Louise, . . . . .	Lawrence.
Dunbar, Lucy Maud, . . . . .	Hallowell.
Dunn, Violet Wanda, . . . . .	Concordia.

## SOPHOMORES—continued.

Dyer, Rose Josephine, . . . . .	Baldwin.
Eaton, Lola Earle, . . . . .	Kansas City, Mo.
Ebnother, Charles William, . . . . .	Downs.
Ecroyd, Guy L., . . . . .	Arkansas City.
Edwards, George Herbert, jr., . . . . .	Lawrence.
Eldridge, Ray Lemuel, . . . . .	Ellsworth.
Elliott, Russell Dunmire, . . . . .	Lawrence.
Evans, Harold David, . . . . .	Kansas City, Mo.
Evans, Ruth Anne, . . . . .	Lawrence.
Ewald, Mark Scheffer, . . . . .	Lawrence.
Fairweather, Maurine Imogene, . . . . .	Kansas City, Mo.
Flagg, Paul Eldridge, . . . . .	Perry.
Flint, Herbert, . . . . .	Girard.
Frank, Arvid L., . . . . .	Kansas City, Mo.
Frank, Frederick Rudolph, . . . . .	Lawrence.
Fuqua, Florence Frances, . . . . .	Kansas City.
Gardner, Richard Harland, . . . . .	Altoona.
Garnett, Ida Drake, . . . . .	Lawrence.
Gemberling, Grace Elizabeth, . . . . .	Lancaster.
Gibson, Charles Earl, . . . . .	Wellsville.
Golden, Lela, . . . . .	Fort Scott.
Goldman, Abe Milton, . . . . .	Kansas City, Mo.
Gorsuch, Pearl Elizabeth, . . . . .	Sharon Springs.
Graber, Otto Christy, . . . . .	Moundridge.
Granger, Marshall Allen, . . . . .	Lawrence.
Grant, Mary Amelia, . . . . .	Topeka.
Greenfield, Edmon, . . . . .	Sabetha.
Greer, Caroline Virginia, . . . . .	Kansas City, Mo.
Grove, Theodore, . . . . .	Newton.
Gunning, Robert E. Lee, . . . . .	Wichita.
Hall, Adine Vinson, . . . . .	Ottumwa, Iowa.
Harbaugh, Harry Frantz, . . . . .	Linwood.
Harger, Ruth Moreau, . . . . .	Abilene.
Hart, Walter Edward, . . . . .	Newton.
Healey, Florence, . . . . .	Lawrence.
Hedrick, Marie Adeline, . . . . .	Kansas City, Mo.
Hemphill, Robert Warren, jr., . . . . .	Norton.
Hinchman, Edna Lora, . . . . .	Lawrence.
Hodgson, Helen Dale, . . . . .	Lawrence.
Hoopes, Helen Rhoda, . . . . .	Lawrence.
Houghton, Helen Louisa, . . . . .	Lawrence.
Hoyt, William Valentine, . . . . .	Lawrence.
Hudson, Pearl, . . . . .	Fredonia.
Huff, Lucy Helen, . . . . .	Chapman.
Hull, Lois Fern, . . . . .	Nickerson.
Hunter, Martha Mae, . . . . .	Lawrence.
Hunter, Mary Mabel, . . . . .	Labette.
Janes, William Earl, . . . . .	Spring Hill.
Johnson, Alvin Ralph, . . . . .	Oneida.
Jones, Frank Nesbet, . . . . .	Columbus.
Keeler, Dorothy Isabel, . . . . .	Lawrence.
Kehl, Charles Cyrus, . . . . .	Newton.
Keith, Eleanor Margaret, . . . . .	Byars, Okla.
Keith, Mary Helen, . . . . .	Lawrence.
Kellogg, Arthur Remington, . . . . .	Kansas City, Mo.
Kennedy, James Lyle, . . . . .	Holton.
Kennedy, Marjorie Luella, . . . . .	Lawrence.
Klamm, Arthur George, . . . . .	Basehor.
Kohman, Emma Anna, . . . . .	Dillon.
Krebs, Anna Margaret, . . . . .	Lawrence.
Kruse, Schiller, . . . . .	Lawrence.
Laffer, Henry Wilson, . . . . .	Jewell.
Lambe, Ruth Sarah, . . . . .	Lawrence.
Landen, Elsie Marie, . . . . .	Lawrence.
LaRue, Mary Jane, . . . . .	Lawrence.
Latta, Trine Hardy, . . . . .	Wichita.
Lear, Veta Blanche, . . . . .	Columbus.
Light, Naomi, . . . . .	Lawrence.
Lightner, Jean, . . . . .	Bucklin.



## SOPHOMORES—continued.

Lourey, Maude Trosch, . . . . .	Frankfort.
Lucas, Meda Frances, . . . . .	Ashland.
Luke, Ittai Albert, . . . . .	Topeka.
Macy, Ernest W., . . . . .	Glen Elder.
Magathan, Wallace Clifton, . . . . .	Marion.
Maloy, Daniel Henry, . . . . .	Eureka.
Mann, Millie, . . . . .	Grenola.
Marchbanks, Howard Earl, . . . . .	Pittsburg.
Maris, Ward Hale, . . . . .	Kansas City, Mo.
Marks, George Washington, . . . . .	Lawrence.
Matthaei, Wesley Edmund, . . . . .	Ellinwood.
May, Charlotte King, . . . . .	Holton.
Meservey, Frances Harris, . . . . .	Kansas City, Mo.
Miller, Clarence, . . . . .	Independence.
Milligan, Jay McDonald, . . . . .	Olathe.
Milton, Iva Pearl, . . . . .	Stafford.
Minner, Claude Baker, . . . . .	Soldier.
Morgan, Howard Charles, . . . . .	Kansas City.
Morton, Clare Alice, . . . . .	Green.
Morton, Ruth, . . . . .	Tescott.
Mowry, Elza Christopher, . . . . .	Cortez, Colo.
McFarland, Bernice, . . . . .	Lawrence.
MacGeorge, Robin, . . . . .	Kansas City.
McMillan, Stewart Earl, . . . . .	Wichita.
Neuschwanger, Amanda, . . . . .	Osborne
Neuschwanger, Elmer Graybill, . . . . .	Osborne
Neuschwanger, Sarah Maude, . . . . .	Osborne
Nevin, Leila May, . . . . .	Lawrence.
Peck, Ruby May, . . . . .	Garnett.
Perry, Arthur Choat, . . . . .	Kansas City, Mo.
Phelps, Glen Albert, . . . . .	Lawrence.
Pinkerton, Stanley R., . . . . .	Olathe.
Piotrowski, Edith Agnes, . . . . .	Fort Scott.
Powell, Frances Isabel, . . . . .	Lawrence.
Rearick, Vida Vesta, . . . . .	Lawrence.
Reed, Jessie Freeman, . . . . .	La Plata, Mo.
Reed, Thomas Lester, . . . . .	Circleville.
Richardson, Alma May, . . . . .	Lawrence.
Richardson, Esther Pauline, . . . . .	Lawrence.
Ritter, Clair August, . . . . .	Goodland.
Roberts, Margaret, . . . . .	Browning, Mo.
Ross, Paul, . . . . .	Alden.
Rule, Ruth Barbara, . . . . .	Lawrence.
Salthouse, Louise E., . . . . .	McPherson.
Sands, Frank Creagon, . . . . .	Cherryvale.
Sankee, Ruth Eugenia, . . . . .	Lawrence.
Schaeffer, Paul Biglow, . . . . .	Oskaloosa.
Schuchart, Mary Ann, . . . . .	Waterville.
Schultz, Bernice Edmund, . . . . .	Barnes.
Sealy, Marie Patience, . . . . .	Independence, Mo.
Shade, Florence May, . . . . .	Ellsworth
Shope, Robert Sanford, . . . . .	Frankfort.
Short, Helen Marie, . . . . .	Leavenworth.
Shuck, Leota Vere, . . . . .	Kansas City.
Siegel, Virginia, . . . . .	Kansas City, Mo.
Siever, Carl Henry, . . . . .	Wichita.
Smith, Peter Frank, . . . . .	Santa Lucia, Cuba.
Smith, William Addison, . . . . .	Cuba.
Snider, Juliet, . . . . .	Fort Scott.
Soper, Fred Lowe, . . . . .	Hutchinson.
Spangler, Irma Bauman, . . . . .	Lawrence.
Spotts, Vena Edna, . . . . .	Lawrence.
Spreier, Christine, . . . . .	Pawnee Rock.
Spreier, Frederick Franklin, . . . . .	Pawnee Rock.
Springer, Roy Stanley, . . . . .	El Dorado.
Stone, Henry Nathaniel, . . . . .	Kansas City.
Strahm, Vivian Susanna, . . . . .	Lawrence.
Strickland, Charles Edwin, . . . . .	Wellington.
Stubbs, Della Catharine, . . . . .	Lawrence.

## SOPHOMORES—concluded.

Swarts, Ralph Easterday, . . . . .	Arkansas City.
Thompson, Mrs. Grace Ebright, . . . . .	Mankato.
Thompson, Leslie Ray, . . . . .	Netawaka.
Thomson, John Woodman, . . . . .	Irving.
Thomson, Rue Edyth, . . . . .	Junction City.
Thornton, Mabel, . . . . .	Kansas City, Mo.
Timanus, Effie May, . . . . .	Randolph.
Tipton, Denny Orlando, . . . . .	Norwich.
Tryon, Clare Henry, . . . . .	Kansas City.
Tudor, Herbert Ovando, . . . . .	Holton.
Tupper, Mary, . . . . .	Lawrence.
Utterback, Theodore Harvey, . . . . .	Medicine Lodge.
Van Eman, Edith Katherine, . . . . .	Leavenworth.
Venerable, Neosho Blaine, . . . . .	Lawrence.
Waddel, Alfred Francis, . . . . .	Ottawa.
Walker, Fairfield Randall, . . . . .	Lawrence.
Ward, Dorothy Sandiford, . . . . .	Lawrence.
Weaver, Edith Carrie, . . . . .	Lawrence.
Welch, Erroll Meredith, . . . . .	Cashion, Okla.
Welch, Howard Stanley, . . . . .	Gas.
West, Harry Andrew, . . . . .	Yates Center.
Wheeler, Jessie Francis, . . . . .	Russell.
Wible, Elmer Thomas, . . . . .	Holton.
Wiley, Ralph Crail, . . . . .	Lawrence.
Wilhelm, Esther Rebecca, . . . . .	Lawrence.
Williams, Letha Louise, . . . . .	Lawrence.
Williams, Seymore Edward, . . . . .	Burlingame.
Willitt, Jessie Marie, . . . . .	Hiawatha.
Wineinger, Viola May, . . . . .	White Cloud.
Winegart, Earl Wayne, . . . . .	Topeka.
Woods, Mabel Faye, . . . . .	Burden.
Worden, Arthur Milton, . . . . .	Wellington.
Worrall, Lila Irene, . . . . .	Oberlin.
Wren, Everett Westly, . . . . .	Kincaid.
Wright, Charles Ray, . . . . .	Winfield.
Yates, Blyden William, . . . . .	Kansas City, Mo.
Yeoman, Ralph, . . . . .	Kingman.
Younggreen, Charles Clark, . . . . .	Topeka.
Zimmerman, Levi Carl, . . . . .	Sterling.

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## FRESHMEN.

Ackers, Frank Carlyle, . . . . .	Abilene.
Adams, Robert Harrison, . . . . .	Caldwell.
Adrianace, Edith, . . . . .	Tonkawa, Okla.
Ainsworth, William, . . . . .	Lyons.
Alberty, Watie Murrell, . . . . .	Westville, Okla.
Alderson, Aileen, . . . . .	Kansas City, Mo.
Allen, Lewis George, . . . . .	Lenexa.
Andre, Bess Lois, . . . . .	Billings, Mo.
Armstrong, Maude, . . . . .	Centralia.
Ashby, Edwin Topping, . . . . .	Kansas City, Mo.
Asher, Benjamin Harrison, . . . . .	Great Bend.
Babcock, Rhea Mary, . . . . .	Troy.
Baerg, William J., . . . . .	Hillsboro.
Bailey, Austin, . . . . .	Lawrence.
Baker, Wilbur Arthur, . . . . .	Woodston.
Baker, William Reuna, . . . . .	Rosedale.
Banker, Louis Waldo, . . . . .	Russell.
Barber, Ward Seymour H., . . . . .	Abilene.
Barteldes, Elsa, . . . . .	Lawrence.
Bartberger, Ethel Pauline, . . . . .	South Park.
Bates, Marjorie Frances, . . . . .	Garden City.
Baum, Eva Margaret, . . . . .	Natoma.
Baxter, John Lambert, . . . . .	Lawrence.
Becktell, Bessie Belle, . . . . .	Macksville.
Benkelman, George Albert, jr., . . . . .	St. Francis.
Benton, Charles Ernest, . . . . .	Fort Scott.

## FRESHMEN—continued.

Bergen, John Howell, . . . . .	Wichita.
Bevan, Katherine Amelia, . . . . .	Concordia.
Bishop, Joe Baldwin, . . . . .	Lawrence.
Black, Donald Ray, . . . . .	Columbus.
Blincoe, Ernest Edward, . . . . .	Fort Scott.
Blincoe, Homer Raymond, . . . . .	Columbus.
Boener, Edith Maria, . . . . .	Lawrence.
Bower, Kenneth DeWitt, . . . . .	Kansas City.
Branden, Russell, . . . . .	Kingman.
Brawley, Anna Marie Marjorie, . . . . .	Frankfort.
Breyfogle, Beecher Frank, . . . . .	Chanute.
Brown, Hattie Beach, . . . . .	Lawrence.
Brown, Homer Howden, . . . . .	Lawrence.
Brown, Olive Irene, . . . . .	Lawrence.
Bulger, Anna Marie, . . . . .	Baxter Springs.
Burgess, Warren C., . . . . .	Beatrice, Neb.
Burkhardt, Nellie Eileen, . . . . .	Kansas City, Mo.
Burtch, Euly H., . . . . .	Humboldt.
Burton, Mary Cecile, . . . . .	Kansas City, Mo.
Busch, Ralph Stanley, . . . . .	Junction City.
Carr, Ida Olive, . . . . .	Eudora.
Carson, Cale W., . . . . .	Ashland.
Case, Stella Florence, . . . . .	Kansas City, Mo.
Chalfont, Arthur Raymond, . . . . .	Garden City.
Cheney, Rollo Hestwood, . . . . .	Gypsum City.
Clasen, Arthur Charles, . . . . .	Rosedale.
Coleman, Herbert Rockwood, . . . . .	Lawrence.
Collins, Lucile Maurine, . . . . .	Seneca.
Cook, Frank Finley, . . . . .	Medicine Lodge.
Coolbaugh, Charles William, . . . . .	Stockton.
Coors, Eva Mildred, . . . . .	Humboldt.
Corlis, Lyman Alvah, . . . . .	Eudora.
Covey, Chester Claude, . . . . .	Baxter Springs.
Cox, Girlie, . . . . .	Kansas City.
Craig, Joe Lucinda, . . . . .	Victor, Colo.
Creager, Ernest Thornton, . . . . .	La Cygne.
Cross, Edith Margaret, . . . . .	Ellis.
Crowley, Corinne Ruth, . . . . .	Lawrence.
Davis, Margaret Rogers, . . . . .	Lawrence.
Davis, Raymond, . . . . .	Howard.
Day, Hazel M., . . . . .	Canton.
DeBord, Elizabeth Lucille, . . . . .	Kansas City, Mo.
Dehn, Clara Eloise, . . . . .	Williamsburg.
Deibert, Ruth, . . . . .	Florence, Colo.
Dickenson, Alice Carmen, . . . . .	Mildred.
Doty, Harry, . . . . .	Hoisington.
Downs, Cornelia Mitchell, . . . . .	Kansas City.
Dresia, Ethel May, . . . . .	Columbus.
Dunmire, Ray Allen, . . . . .	Lawrence.
Ebenstein, Evelyn Faye, . . . . .	Columbus.
Edwards, Celeste, . . . . .	Sedan.
Edwards, Raymond Franklin, . . . . .	Chapman.
Eggleston, James Hiram, . . . . .	Parsons.
Elliott, Ethel Marion, . . . . .	Lawrence.
Ellis, Marguerite Maxine, . . . . .	Cherryvale.
Emerson, Beatrice Marie, . . . . .	Wellington.
Emery, John Ridge, . . . . .	Seneca.
Engel, Agnes Estelle, . . . . .	Lawrence.
Estep, Meta, . . . . .	Vinland.
Evans, Harry Parker, . . . . .	Edgerton.
Evison, Fred, . . . . .	Parsons.
Ewart, Chester Harold, . . . . .	Minneapolis.
Fair, George Harlan, . . . . .	Lawrence.
Fairchild, Louise May, . . . . .	Topeka.
Faris, Mabel A. Hughes, . . . . .	Kanopolis.
Farley, James Newton, . . . . .	Hutchinson.
Ferguson, Philip Mitchell, . . . . .	Olathe.
Fincke, Carl William, . . . . .	Rosedale.
Fischer, Erna Clara Jaedicke, . . . . .	Lawrence.

FRESHMEN—*continued.*

Flint, Charles Mica, . . . . .	Girard.
Fogarty, Marie Frances, . . . . .	Junction City,
Folks, Ray Jesse, . . . . .	Linwood.
Forbes, Wylie Hazard, . . . . .	Wathena.
Fowler, Wayne Amos, . . . . .	Chanute.
Freark, Christine Beatrice, . . . . .	Lawrence.
Furgason, Earl Ruben, . . . . .	Garnett.
Garrison, George Blaine, . . . . .	Eureka.
Garvey, Kenneth Alford, . . . . .	Caney.
Gear, George Russell, . . . . .	Buffalo.
Gettys, Florence Gertrude, . . . . .	Concordia.
Giesel, Frederick William, . . . . .	Overbrook.
Gilbert, Mabel Esther, . . . . .	Arkansas City.
Gillett, Wilbur Goodson, . . . . .	Kingman.
Godding, Frank Eugene, . . . . .	Lawrence.
Goff, Virginia Fern, . . . . .	Lawrence.
Grady, Grover Quinton, . . . . .	Alden.
Gray, Howard, jr., . . . . .	St. John.
Grayson, Nelle Mae, . . . . .	Lawrence.
Grayson, Roy D., . . . . .	Lawrence.
Greene, Hazel Katherine, . . . . .	Lawrence.
Greenlees, James Andrew, . . . . .	Nowata, Okla.
Greever, Paul Ranous, . . . . .	Tonganoxie.
Gridley, John Seymour, . . . . .	Parsons.
Grignard, Aimee Marie, . . . . .	New York City, N. Y.
Hackney, Edward Blair, . . . . .	Atchison.
Haines, Ina St. Claire, . . . . .	Edwardsville.
Hamilton, John William, . . . . .	Columbus.
Hammond, Vivian Beulah, . . . . .	Morrill.
Hannah, Robert William, . . . . .	Kansas City.
Harbaugh, Charles Allen, . . . . .	Linwood.
Harkrader, Winfred, . . . . .	Pratt.
Harrell, George S., . . . . .	Washington.
Harsh, Leon A., . . . . .	Brookville, Pa.
Haworth, Henry Huntsman, . . . . .	Lawrence.
Hayes, Helen Mary, . . . . .	Lawrence.
Hayes, Lucius Bogle, . . . . .	Lawrence.
Haynes, Arthur Haislet, . . . . .	Sabetha.
Headrick, Clyde Edward, . . . . .	Superior, Neb.
Hebbe, Ortie May, . . . . .	Tonkawa, Okla.
Henderson, Frank Bernard, . . . . .	Kansas City, Mo.
Herrick, Genevieve Marie, . . . . .	Kansas City, Mo.
Hickman, Mildred Louise, . . . . .	Hutchinson.
Hill, Powell Henderson, jr., . . . . .	Lawrence.
Hilton, Kirk Edwin, . . . . .	Cottonwood Falls.
Himpel, Ella Mae, . . . . .	Tonganoxie.
Himpel, Minnie Anna, . . . . .	Tonganoxie.
Hirsch, Clarence Adolph, . . . . .	Kansas City, Mo.
Hoffman, Edward Wolcott, . . . . .	Kansas City, Mo.
Horton, Imogene Virginia, . . . . .	Kansas City, Mo.
Housholder, Victor Hugo, . . . . .	Columbus.
Howard, Joseph Griffin, . . . . .	Nickerson.
Howden, Thomas Lawrence, . . . . .	Skidmore, Mo.
Howells, Naomi, . . . . .	Rosedale.
Huey, Helen Evelyn, . . . . .	Coffeyville.
Huff, Bernice, . . . . .	Chapman.
Hughes, Carl Franklin, . . . . .	Wellsville.
Hughes, William Lewis, . . . . .	Arapaho, Okla.
Huston, Nellie Georgina, . . . . .	Belvue.
Inge, Nona Lucy, . . . . .	Independence.
Ingels, Edna Marie, . . . . .	Lawrence.
Irwin, Gayl Lillian, . . . . .	Lawrence.
Jaggar, Charlotte Columbia, . . . . .	Oakley.
Jarvis, Mary Anna, . . . . .	Arkansas City.
Jenkins, Claudia Ervilla, . . . . .	Kansas City.
Jenkins, Considee Blackstone, . . . . .	Kansas City.
Johnson, Lester Robert, . . . . .	Kinsley.
Johnston, Walter Raymond, . . . . .	Coldwater.
Jones, Frank Lewis, . . . . .	Alma.



## FRESHMEN—continued.

Jones, Ogden Sherman, . . . . .	Lawrence.
Joseph, Donald Burdett, . . . . .	White Water.
Joyce, Ivy Lillian, . . . . .	Ashland.
Kauzer, Adelaide Marie, . . . . .	Lawrence.
Kealing, Frances Frederica, . . . . .	Quindaro.
Kelley, Carl David, . . . . .	Lawrence.
Kennedy, James Randolph, . . . . .	Fort Scott.
Ketchersid, Paul E., . . . . .	Hope.
Kimball, Olive Marie, . . . . .	Salina.
Kistler, Alfred Rudolph, . . . . .	Alta Vista.
Klump, Joseph Philip, . . . . .	Rich Hill, Mo.
Knieper, Lillie Florence, . . . . .	Hutchinson.
Lacock, Edith Laverne, . . . . .	Columbus.
LaMer, Victor Kuhn, . . . . .	Leavenworth.
Landrey, Wilbur Grant, . . . . .	Kansas City.
Larabee, Myrtle Ethel, . . . . .	Isabel.
Laslett, Herbert Reynolds, . . . . .	Lawrence.
Latimer, Windell Mitchell, . . . . .	Greeley.
Lawson, Ruth, . . . . .	Kansas City, Mo.
Lewinsohn, James Gordon, . . . . .	Parsons.
Levinson, Yale Norman, . . . . .	Kansas City, Mo.
Lewis, Ralph Emerson, . . . . .	Topeka.
Libby, Carleton Glen, . . . . .	Glen Elder.
Lill, Harboro Isaac, . . . . .	Eudora.
Linley, Robert Wilson, . . . . .	Atchison.
Litchen, Ruth Eleanor, . . . . .	Leavenworth.
Loflin, Ethel Evangeline, . . . . .	Ellis.
Long, Jacob Benjamin, . . . . .	Kalispell, Mont.
Lovejoy, Elizabeth Burt, . . . . .	Lawrence.
Loveless, Floyd Lester, . . . . .	Wetmore.
Luckan, Louise Anne, . . . . .	Lawrence.
Luckey, Elsie Fay, . . . . .	Osborne.
Lupher, Dora Grace, . . . . .	Lawrence.
Mack, Harold Adelbert, . . . . .	Kansas City.
Mack, Warren Willis, . . . . .	Kansas City.
Madden, John Curry, . . . . .	Mound City.
Malleis, Ida Elizabeth, . . . . .	Halstead.
Manley, Marion, . . . . .	Junction City.
Marcy, Joseph Ferdinand, . . . . .	Concordia.
Martin, Elizabeth, . . . . .	Hutchinson.
Mathews, Ovid Glee, . . . . .	Kansas City, Mo.
Mattoon, Harold Frank, . . . . .	Lawrence.
Melville, Ethel May, . . . . .	Pittsburg.
Meservey, Edwin Clement, jr., . . . . .	Kansas City, Mo.
Meyer, Margaret Florence, . . . . .	Kansas City, Mo.
Middleton, Avis, . . . . .	Minneapolis.
Mierau, Jacob B., . . . . .	Newton.
Millard, Lela Madge, . . . . .	Larned.
Miller, Forest Jennings, . . . . .	Sabetha.
Miller, Phil Downey, . . . . .	Kansas City.
Milton, Charlie Lewis, . . . . .	Lawrence.
Mitchell, Alexander Baldwin, . . . . .	Lawrence.
Moore, Charles Leroy, . . . . .	Galena.
Morrow, Elizabeth, . . . . .	Lawrence.
Moss, Lottie Ethel, . . . . .	Kansas City.
Murdock, Imogene, . . . . .	Kansas City, Mo.
Myers, Eleanor, . . . . .	Shawnee, Okla.
McClure, Clara Belle, . . . . .	Arkansas City.
McConnell, Silva Pearl, . . . . .	Lawrence.
McDaniel, Hazel Burnice, . . . . .	McAlister, Okla.
McDowell, Clara Frances, . . . . .	Arkansas City.
McElhenny, George Dean, . . . . .	Detroit.
McGill, Cora Corinne, . . . . .	Hill City.
McGill, Maribelle, . . . . .	Lawrence.
McKenzie, Viva Hazeltine, . . . . .	Lawrence.
McNutt, Cora Elizabeth, . . . . .	Eureka.
McVay, Virginia Wilkinson, . . . . .	Wichita.
Nachtmann, Madeline, . . . . .	Junction City.
Nason, Robert Harold, . . . . .	Kansas City.

FRESHMEN—*continued.*

Needles, Walter Emery, . . . . .	Emporia.
Nincehelter, Nell Elizabeth, . . . . .	Oskaloosa.
Northrup, Lewis Orlonzo, . . . . .	Iola.
Norton, Leonard Raymond, . . . . .	Morrisville, Vt.
O'Brien, Floyd Delos, . . . . .	Lawrence.
O'Donnell, Henry St. Clair, . . . . .	Ellsworth.
Oechsli, Waldo Raymond, . . . . .	Lawrence.
Olney, Avery Fincher, . . . . .	Lawrence.
Opperman, Elizabeth Margaret, . . . . .	Baxter Springs.
O'Sullivan, Frank, . . . . .	Galena.
Overman, Clio Ivine, . . . . .	Lawrence.
Owings, Virdilla, . . . . .	Lawrence.
Palmer, Adna, . . . . .	Kingman.
Peairs, Lawrence Reece, . . . . .	Lawrence.
Peterson, Elsie Velma, . . . . .	Spring Hill.
Pike, Flora Aroline, . . . . .	Kansas City, Mo.
Piotrowski, Martha Pauline, . . . . .	Fort Scott.
Poos, Fred W., . . . . .	Potter.
Porter, Dorothy, . . . . .	Topeka.
Probst, John Henry, . . . . .	Arkansas City.
Quick, Hazel Lois, . . . . .	Redfield.
Rader, Alexander Knox, . . . . .	Howard.
Rader, Ralph Roscoe, . . . . .	Howard.
Ragle, Harold Eugene, . . . . .	Independence.
Read, Harry Frary, . . . . .	Kinsley.
Rhodes, Theodore James, . . . . .	Frankfort.
Richardson, Paul Sumner, . . . . .	Medicine Lodge.
Ridgway, Wayne Anthony, . . . . .	Kansas City.
Rieger, Oscar, . . . . .	Kansas City, Mo.
Rigby, Helen Elaine, . . . . .	Concordia.
Riseley, Jerry Burr, . . . . .	Stockton.
Robertson, John Breathitt, . . . . .	Kansas City, Mo.
Robinson, Henry Elmo, . . . . .	Kansas City, Mo.
Rosenberg, Nathan, . . . . .	Kansas City, Mo.
Ross, Albert Clayton, . . . . .	Lawrence.
Roswurm, Elmer Chris, . . . . .	St. John.
Rowles, Laura Harriet, . . . . .	Wichita.
Russ, Marie Elizabeth, . . . . .	Atchison.
Russell, Frank Liscum, . . . . .	Lawrence.
Sandberg, Minnie Vera, . . . . .	Kansas City, Mo.
Schenck, George Frederic, . . . . .	Centerville.
Schwinley, Audrey Effie, . . . . .	Lawrence.
Scott, Harold Wiley, . . . . .	Leavenworth.
Scott, Verna Noel, . . . . .	Wichita.
Shank, Reta Gladys, . . . . .	Bronson.
Shimmons, Lelia Marie, . . . . .	Baldwin.
Shiney, Edward Wilson, . . . . .	La Crosse.
Simpson, Henry Clay, . . . . .	Lincoln.
Smith, Bernard A., . . . . .	Sabetha.
Smith, Bessie Lucille, . . . . .	Colby.
Smith, Charles Irving, . . . . .	Sabetha.
Smith, Charles William, . . . . .	Stockton.
Smith, Clarence, . . . . .	Lawrence.
Smith, Josephine A., . . . . .	Wellington.
Smith, Lucile, . . . . .	Kansas City, Mo.
Smith, Ruth Amos, . . . . .	Seneca.
Smithmeyer, Sophie Alice, . . . . .	Lawrence.
Spicer, William Sidney, . . . . .	Lawrence.
Sprinkle, Lester Atchley, . . . . .	Topeka.
Sproull, Ralph David, . . . . .	Lawrence.
Spurrier, Leo, . . . . .	Kingman.
Spurrier, Maude, . . . . .	Kingman.
Stanwaity, Mary, . . . . .	Columbus.
Starin, Louis Martin, . . . . .	Netawaka.
Stemen, Ray, . . . . .	Kansas City.
Stephenson, Howard Paul, . . . . .	Montreal, Canada.
Stevens, Myra, . . . . .	Lawrence.
Strahan, Florence Mabel, . . . . .	Belton, Mo.
Strahan, Gladys Allene, . . . . .	Belton, Mo.

## FRESHMEN—concluded.

Strobel, Clyde Adolph, . . . . .	Garfield.
Stubbs, Ansel Hartley, . . . . .	Kansas City.
Stubbs, Stella, . . . . .	Lawrence.
Swinney, Raymond Woolridge, . . . . .	Rosedale.
Swisher, Jubal Cleveland, . . . . .	Gypsum.
Swisher, Maud, . . . . .	Lawrence.
Syms, Judith Ann, . . . . .	Rosedale.
Taylor, Clyde Frank, . . . . .	Paola.
Taylor, Nellie R., . . . . .	White Cloud.
Taylor, Thomas Thompson, jr., . . . . .	Lewiston, Mont.
Templin, Marjorie Alta, . . . . .	Lawrence.
Todd, Arnold C., . . . . .	Halstead.
Topping, Lucile Margaret, . . . . .	Ottawa.
Totten, Florence, . . . . .	Beattie.
Treadway, Verma, . . . . .	Newton.
Ulrich, Ethel Lenore, . . . . .	Lawrence.
Van Dolah, Justin Shotwell, . . . . .	Hutchinson.
Vansell, George H., . . . . .	Muscotah.
Vermillion, Earl LeRoy, . . . . .	Tescott.
Vincent, Estella Augusta, . . . . .	Overbrook.
Walker, Franky, . . . . .	Lawrence.
Walker, Genevieve, . . . . .	Salina.
Walker, Sidney Carr, . . . . .	Holton.
Ward, Charles Emerson, . . . . .	Lawrence.
Warren, McKinley, . . . . .	Delphos.
Wasson, Hugh Presley, . . . . .	Rosedale.
Watson, Charles Hoyt, . . . . .	Kansas City.
Waugh, William Kansas, . . . . .	Esksridge.
Weaver, Arthur Bullene, . . . . .	Lawrence.
Weirich, Erma Corrinne, . . . . .	Fort Scott.
Wentworth, Hiram Hill, . . . . .	Russell.
Wessels, Vera Gretcha, . . . . .	Kansas City.
Whitaker, William Otto, . . . . .	Kiowa.
Whitcher, Florence Mildred, . . . . .	Concordia.
Wiley, Ralph, . . . . .	El Dorado.
Williams, Charles G., . . . . .	Preston.
Williams, Ida Stella May, . . . . .	Holton.
Williamson, Clarence Edgar, . . . . .	Rosedale.
Willson, Harry S., . . . . .	Waterville.
Wilson, Amos Evans, jr., . . . . .	Leavenworth.
Wilson, Donald Ray, . . . . .	Paola.
Winkler, Claude, . . . . .	Chanute.
Winn, Marguerite, . . . . .	Kansas City.
Wishropp, Alvena A., . . . . .	Paola.
Witte, Lucile, . . . . .	Shawnee, Okla.
Wolf, Eleanor Adelia, . . . . .	Kansas City.
Wonder, Etura Marie, . . . . .	Hiawatha.
Woodson, Muffet, . . . . .	Claremore, Okla.
Woolery, Robert Dale, . . . . .	Olathe.
Wooster, Irene, . . . . .	Kansas City.
Wright, Ray Elbert, . . . . .	Lyons.
Zimmerman, Ray Shadel, . . . . .	Hiawatha.
Zimmerman, Silas Gelia, . . . . .	Troy.
Zuercher, Peter H., . . . . .	White Water.

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## SPECIALS.

Abraham, Raymond C., . . . . .	El Dorado.
Ackerman, Henry C., . . . . .	Rosedale.
Alford, Sylvia, . . . . .	Lawrence.
Altschuler, Sidney Lyons, . . . . .	Kansas City, Mo.
Amos, Thyrsa Wealtha, . . . . .	Spivey.
Aschmann, Theodore, . . . . .	Inman.
Asher, Mildred Lee, . . . . .	Hutchinson.
Baird, Spencer Lawrence, . . . . .	Dodge City.
Barnes, Luther, . . . . .	Lawrence.
Bartlett, Ray L., . . . . .	Lawrence.
Barton, Fred Turner, . . . . .	Kansas City.
Bennett, James L., . . . . .	Carthage, Mo.

SPECIALS—*continued.*

Biggerstaff, Estelle Agnes, . . . . .	<i>La Belle, Mo.</i>
Blacker, James Ray, . . . . .	Kansas City.
Bouse, Thornton L., . . . . .	Holton.
Broderick, George Harold, . . . . .	Lawrence.
Brown, Alice Lenore, . . . . .	Lawrence.
Brown, Carl R., . . . . .	Lawrence.
Brown, George L., . . . . .	Atchison.
Brown, Marley Roberts, . . . . .	Olathe.
Brown, Birdie Edna, . . . . .	Lawrence.
Brown, Walter Haslett, . . . . .	<i>Kansas City, Mo.</i>
Brownlee, John Charles, . . . . .	Stafford.
Brownlee, Mary Angelina, . . . . .	Stafford.
Brunner, Lillie, . . . . .	Onaga.
Bryant, Jesse W., . . . . .	Perry.
Buck, Helen Elizabeth, . . . . .	Lawrence.
Cain, William Q., . . . . .	Atchison.
Calhoun, Harold H., . . . . .	Fort Scott.
Callender, Harold, . . . . .	Kansas City.
Carraher, Nelle, . . . . .	<i>Kansas City, Mo.</i>
Clark, Clement F., . . . . .	Wichita.
Clark, E. Ethel, . . . . .	Lawrence.
Colin, Edward Cecil, . . . . .	Argonia.
Connell, Ott Lockett, . . . . .	Topeka.
Cornelius, Lillian Mabel, . . . . .	Nickerson.
Cowper, Mary, . . . . .	Lawrence.
Craig, Halleck Irwin, . . . . .	Independence.
Cramer, Fred Halderman, . . . . .	Columbus.
Cubbon, Nora Louise, . . . . .	Wichita.
Dahlene, Eduard, . . . . .	Lawrence.
Dahlene, Genevieve Dorothy, . . . . .	Lawrence.
Dibble, Ivan W., . . . . .	Topeka.
Doggett, Walter Martin, . . . . .	Leoti.
Dykes, John Henry, . . . . .	Lebanon.
Eaglen, Harriet Vashti, . . . . .	Chapman.
Edmonson, Otis M., . . . . .	<i>Winchester, Ill.</i>
Ellis, Marian, . . . . .	Kansas City.
Ellsworth, Edith M., . . . . .	Cherryvale.
Elward, Virginia, . . . . .	Hutchinson.
Emery, Marguerite, . . . . .	Lawrence.
Escoe, Idaline Maude, . . . . .	Lawrence.
Falls, Clarence Edward, . . . . .	Salina.
Ferguson, Harold J., . . . . .	Wichita.
Fillmore, Benjamin D., . . . . .	Blue Rapids.
Fisher, Robert, . . . . .	Lawrence.
Fleck, Frank, . . . . .	<i>Lakemp, Okla.</i>
Fowler, Lulu Ethel, . . . . .	Lawrence.
Fraser, Roy L., . . . . .	<i>Galetta, Canada.</i>
Fuchs, Alfred R., . . . . .	<i>Kansas City, Mo.</i>
Gilbert, Genevieve M., . . . . .	Waterville.
Griesa, Theodore Scott, . . . . .	Lawrence.
Gruber, Charles M., . . . . .	Hope.
Guilfoyle, Matthew, . . . . .	Wamego.
Hall, Ross E., . . . . .	Hutchinson.
Harlan, Harold Eugene, . . . . .	Lawrence.
Hassler, Jasper O., . . . . .	Lawrence.
Henley, Gladys Fairchild, . . . . .	Lawrence.
Hennessey, Thomas P., . . . . .	Fulton.
Hepworth, Richard E., . . . . .	Burlingame.
Hershberger, George Grover, . . . . .	Eskridge.
Hinesley, William Earle, . . . . .	Lawrence.
Holcomb, Jessie, . . . . .	Parsons.
Hollowell, A. Cooley, . . . . .	Wichita.
Hooper, Verda, . . . . .	Scammon.
Hornaday, Helen, . . . . .	Lawrence.
Hosier, Abram William, . . . . .	<i>Kansas City, Mo.</i>
Huffman, Genevieve, . . . . .	Abilene.
Jespersen, Conrad M., . . . . .	Lawrence.
Jones, Ernest Clare, . . . . .	<i>Drexel, Mo.</i>
Jones, Thomas R., . . . . .	Arkansas City.



## SPECIALS—continued.

Jones, Vinton, . . . . .	Kansas City, Mo.
Jordan, May H., . . . . .	Lawrence.
Judy, Maude Belle, . . . . .	Oskaloosa.
Kanaga, Margaret S., . . . . .	Lawrence.
Kelly, Joseph P., . . . . .	Kansas City, Mo.
Kelly, Milton W., . . . . .	Lawrence.
Keplinger, Louis W., jr., . . . . .	Kansas City.
Kirchoff, Gertrude Agnes, . . . . .	Lawrence.
Ladenberger, Frank, . . . . .	Hoisington.
Lauterbach, William John, . . . . .	Pekin, Ill.
Lee, Arthur Albert, . . . . .	Columbus.
Lee, Charles O., . . . . .	McCune.
Leidigh, James T., . . . . .	Hutchinson.
Loesch, Henry William, . . . . .	Lawrence.
Martin, Claude J., . . . . .	Mason City, Ill.
Martin, Virgil L., . . . . .	Douglass.
Mason, Lowell, . . . . .	Lawrence.
Massey, Mark Fuller, . . . . .	Chanute.
Miller, Lena Vivian, . . . . .	Lawrence.
Miller, Raymond F., . . . . .	Emporia.
Moore, Fred W., . . . . .	Lawrence.
Moore, Joseph Earle, . . . . .	Kansas City, Mo.
Moore, William Austin, . . . . .	Topeka.
Mundell, Walter N., . . . . .	Hutchinson.
Myers, John T., . . . . .	Eskridge.
McAllister, Abel J., . . . . .	Herington.
McClure, William H., . . . . .	Republic.
Neal, Guy O., . . . . .	Bluff City.
Nelson, Alfred L., . . . . .	Troy.
Newton, Frank Robert, . . . . .	Iola.
Nigh, Claude H., . . . . .	Iola.
Nixon, Deane Lafferty, . . . . .	El Dorado.
Nutter, Florence, . . . . .	Kansas City, Mo.
Palmer, Mary M., . . . . .	Lawrence.
Pardee, Benjamin V., . . . . .	Baldwin.
Pierson, Leslie Babcock, . . . . .	Lawrence.
Porterfield, Roy A., . . . . .	Baldwin.
Poundstone, L. H., . . . . .	Blackwell, Okla.
Power, Archie D., . . . . .	Baldwin.
Ransom, Mabel Edith, . . . . .	Lawrence.
Ray, Cecil Claude, . . . . .	Wichita.
Rhine, Orrin M., . . . . .	Washington.
Root, Thomas Bullene, . . . . .	Kansas City, Mo.
Rowland, Frank E., . . . . .	Mulvane.
Runnels, Annie, . . . . .	Kansas City, Mo.
Russell, Gertrude Mary, . . . . .	El Dorado.
Sammons, George Benjamin, . . . . .	Sabetha.
Sawyer, Lewis M., jr., . . . . .	Norton.
Sayles, Leonard Troy, . . . . .	Columbia, Mo.
Shaw, Millie, . . . . .	Wichita.
Smith, Amarynthia Jenkins, . . . . .	Louisville, Ky.
Smith, Amos, . . . . .	Seneca.
Snyder, Ethel Fairmount, . . . . .	Kansas City, Mo.
Snyder, Ira C., . . . . .	Stockton.
Stark, Stutely Henry, . . . . .	Ozawkie.
Staton, George Walter, . . . . .	Lawrence.
Staton, Ida Estella, . . . . .	Lawrence.
Steeper, Bert, . . . . .	Lawrence.
Stephens, Edward E., . . . . .	Bethel.
Sterling, John Andrew, . . . . .	Carlton.
Stevens, Francis Herbert, . . . . .	Lawrence.
Stevenson, Arthur Earl, . . . . .	Lawrence.
Surber, Paul, . . . . .	Independence.
Swayne, Ramona, . . . . .	Wamego.
Taylor, Cora Alice, . . . . .	Lawrence.
Thompson, Earl L., . . . . .	Colony.
Thompson, Eleanor Steward, . . . . .	Garnett.
Trued, Levin Julius, . . . . .	Lawrence.
Underwood, Addie, . . . . .	Lawrence.

SPECIALS—concluded.

Villepique, Marguerite Olive, . . . . .	Chanute.
Wallenstein, Marcelle Henry, . . . . .	Atchison.
Weaver, Glenn S., . . . . .	Concordia.
Wells, Genevieve C., . . . . .	Ætna.
White, Benjamin E., . . . . .	Ada.
Wiedemann, Franz G., . . . . .	Lawrence.
Williams, Reginald Victor, . . . . .	Lawrence.
Woodard, Oliver Wendel, . . . . .	Lawrence.
Worrall, Ida May, . . . . .	Oberlin.
Young, Bertha Edna, . . . . .	Lawrence.
Young, E. Maynerd, . . . . .	Girard.

SPECIALS, 162.

# School of Engineering.

## SENIORS.

Andrews, Oliver Lewellyn, Min.E., . . . . .	Powhattan.
Baldwin, Leslie Alonzo, E.E., . . . . .	Kansas City.
Bartlett, Ray L., Mech.E., . . . . .	Kansas City, Mo.
Becker, Henry Veltman, C.E., . . . . .	Ellsworth.
Boesche, Pearl J., C.E., . . . . .	Gaylord.
Bragg, Gilbert A., Chem.E., . . . . .	St. Joseph, Mo.
Bray, Emerson Lester, E.E., . . . . .	Kansas City, Mo.
Broderick, George Harold, Mech.E., . . . . .	Neodesha.
Brown, George Macmillan, Min.E., . . . . .	Pleasanton.
Brown, Glenn Orrin, E.E., . . . . .	Newton.
Browne, Lawrence Leland, Mech.E., . . . . .	Kansas City.
Calderwood, Howard Newton, jr., Chem.E., . . . . .	Argentine.
Carson, Earl, Mech.E., . . . . .	Peabody.
Cole, Perry Commodore, C.E., . . . . .	Clay Center.
Conley, Murray Copes, Mech.E., . . . . .	Oklahoma City, Okla.
Cubbison, Charles E., Chem.E., . . . . .	Gardner.
Daniels, James Ganson, Chem.E., . . . . .	Leavenworth.
Davenport, John Adrian, jr., San.E., . . . . .	Salina.
Dershem, Elmer, E.E., . . . . .	Baldwin.
Dodge, Bert E., C.E., . . . . .	Wichita.
Forney, Ross Huber, Mech.E., . . . . .	La Harpe.
Godfrey, Truman Milo, Chem.E., . . . . .	Kansas City, Mo.
Griffin, Edward Lawrence, Chem.E., . . . . .	Lawrence.
Grignard, Emile E., Chem.E., . . . . .	Lawrence.
Hanson, Carl Falster, E.E., . . . . .	Ceuda Springs.
Hilford, Volney Hewitt, Mech.E., . . . . .	Caney.
Hoadley, Herbert Eugene, E.E., . . . . .	Fort Scott.
Houk, Howard Herman, C.E., . . . . .	Pittsburg.
Howard, J. Denton, Mech.E., . . . . .	Eureka.
Humphrey Thomas Paul, C.E., . . . . .	Mound Valley.
Johnston, Fred Emmett, Mun. and San.E., . . . . .	Madison.
Johnston, Ralph Steele, E.E., . . . . .	Lawrence.
Jones, Jacob Oscar, C.E., . . . . .	Barrett.
King, Thomas Phillips, C.E., . . . . .	Minneapolis.
MacKinnon, Archibald Ronald, Chem.E., . . . . .	Lawrence.
Magatagan, George C., E.E., . . . . .	Chanute.
Mangelsdorf, Albert Henry, Min.E., . . . . .	Atchison.
Martinson, Charles Gilbert, Mech.E., . . . . .	Wichita.
Marvel, Orin Edward, E.E., . . . . .	Bronson.
Mock, Benjamin Roy, E.E., . . . . .	Lawrence.
Monroe, Morton Glen, Min.E., . . . . .	Fairview.
Parker, Ross I., E.E., . . . . .	Kansas City, Mo.
Pyle, Glenn L., Chem.E., . . . . .	Wilmore.
Rhodes, Edmund Oliver, Chem.E., . . . . .	Dodge City.
Richardson, Howard Logan, San.E., . . . . .	Lawrence.
Robinson, Charles Junius, Chem.E., . . . . .	Topeka.
Schreiner, Walter R., C.E., . . . . .	Frankfort.
Shaw, Harold King, Chem.E., . . . . .	Hiawatha.
Smith Guy Samuel, C.E., . . . . .	Hiawatha.
Smith, Ray Mohler, C.E., . . . . .	Hiawatha.
Spilman, Charles Clay, Chem.E., . . . . .	McPherson.
Steeper, Tommy Parr, E.E., . . . . .	Lawrence.
Stockwell, Herbert, C.E., . . . . .	Paola.
Teeter, Carroll E., Min.E., . . . . .	Lawrence.
Thomen, Martin K., E.E., . . . . .	Junction City.
Tucker, Ralph J., C.E., . . . . .	Lyons.
Waddington, Charles Verne, E.E., . . . . .	Wichita.
Walden, Forest Clinton, E.E., . . . . .	Newton.
Wilhelm, Glenn Perrine, C.E., . . . . .	Clay Center.
Wilson, Harold Forney, E.E., . . . . .	Lawrence.
Wilson, Herbert L., C.E., . . . . .	Lyndon.
Wright, Earl Leon, E.E., . . . . .	Pleasanton.

## JUNIORS.

Ackerman, Henry Calvin, Mech.E., . . . . .	Rosedale.
Allison, Lawrence M., Mech.E., . . . . .	Lawrence.
Angevine, Leland Charles, Mech.E., . . . . .	Clyde.
Armstrong, Clinton Garrett, Chem.E., . . . . .	Kansas City, Mo.
Armstrong, Frank Logan, E.E., . . . . .	Lawrence.
Belt, Edison, E.E., . . . . .	Fredonia.
Bodman, Russell John, C.E., . . . . .	Kansas City.
Brown, Eugene Ware, C.E., . . . . .	Fort Scott.
Budd, Ray Wilhite, E.E., . . . . .	Basehor.
Bunn Paul King, C.E., . . . . .	La Crosse.
Burnham, Harry Edwin, San.E., . . . . .	Wa Keeney.
Bush, Dean Thomas, E.E., . . . . .	Kansas City.
Cadmus, Daniel Harrison, Min.E., . . . . .	Parsons.
Campion, Henry Hinkson, E.E., . . . . .	Leavenworth.
Carpenter, Ross Lawrence, Chem.E., . . . . .	Hiawatha.
Chase, Harry Valentine, Chem.E., . . . . .	Kansas City, Mo.
Coats, Charles Melvin, Min.E., . . . . .	Chanute.
Coggins, Claude Lou, Mech.E., . . . . .	Wamego.
Cone, Charles Luther, C. and San.E., . . . . .	Lawrence.
Crawford, Don Kahr, E.E., . . . . .	Topeka.
Cross, Carl, E.E., . . . . .	Wichita.
Davenport, Walter A., San.E., . . . . .	Ottawa.
Devlin, Floyd Barnnard, Mech.E., . . . . .	Newton.
Dodd, Clark Insley, C.E., . . . . .	Fredonia.
Dunn, George Chester, E.E., . . . . .	Hanover.
Fox, William Fern, C.E., . . . . .	Lawrence.
Frush, Ralph Sydney, C.E., . . . . .	Kansas City.
Fuchs, Alfred Robert, E.E., . . . . .	Kansas City, Mo.
Ghormley, John Ray, C.E., . . . . .	Hutchinson.
Glenn, Guy Cecil, C.E., . . . . .	Paola.
Gossard, Alvin Henry, jr., E.E., . . . . .	Kansas City, Mo.
Hainbach, Charles John, Min.E., . . . . .	Chanute.
Halleck, Philo, Min.E., . . . . .	Abilene.
Hartman, Elmer Edward, E.E., . . . . .	Kansas City.
Hennessy, Thomas Patrick, E.E., . . . . .	Fulton.
Hess, Raymond, Chem.E., . . . . .	Perry.
Hill, George Homer, C.E., . . . . .	Paola.
Hobbs, Maurice Hill, E.E., . . . . .	Fairview.
Hoffman, Ralph Nicholas, Min.E., . . . . .	Parsons.
Horner, Oliver Howard, E.E., . . . . .	Cottonwood Falls.
Hunter, Fred, C.E., . . . . .	Labette.
Jaques, Ewart Paul, Chem.E., . . . . .	Kansas City.
Jenkins, Harold Marvin, E.E., . . . . .	Cherokee.
Jones, Thomas Roy, C.E., . . . . .	Arkansas City.
Kingman, Winslow Ames, C.E., . . . . .	Topeka.
Kleihege, Daniel Bertram, Mech.E., . . . . .	Bison.
Knerr, Lewis Ellsworth, Mech.E., . . . . .	Kansas City, Mo.
Kreider, Charles Cottier, Chem.E., . . . . .	Lawrence.
Leatherock, Lloyd Edmond, Chem.E., . . . . .	Cherryvale.
Lyder, Ernest Elmer, Chem.E., . . . . .	Paola.
Lynch, Francis John, E.E., . . . . .	Herington.
Madlem, Leo Smith, Chem.E., . . . . .	Lawrence.
Malcolmson, James Donovan, Chem.E., . . . . .	Kansas City, Mo.
Martin, Ransom Melvin, C.E., . . . . .	Herington.
Massey, Mark Fuller, E.E., . . . . .	Chanute.
Messenger, Frank DeWitt, San.E., . . . . .	Lawrence.
Meyer, Paul Alexander, E.E., . . . . .	Centralia.
Mickey, D. DeWitt, Mun. and San.E., . . . . .	Junction City.
Moffett, Joseph Orr, jr., C.E., . . . . .	Peabody.
Moore, Walter Nathaniel, C.E., . . . . .	Kansas City, Mo.
Morton, Ira William, E.E., . . . . .	Girard.
Murphey, George Robert, C.E., . . . . .	Oklahoma City, Okla.
Nelson, Frank H., C.E., . . . . .	Eureka.
Newby, Howard Lee, Mech.E., . . . . .	Acme, Texas.
Peterson, George Oscar, Chem.E., . . . . .	Lawrence.
Plank, William Jay, Mech.E., . . . . .	Lawrence.
Powell, Alfred Richard, Chem.E., . . . . .	Lawrence.
Price, William Francis, jr., E.E., . . . . .	Topeka.
Riordan, Joseph Alphonsus, Chem.E., . . . . .	Solomon.



## JUNIORS—concluded.

Roberts, Clay, Min.E., . . . . .	Kansas City.
Rush, Earl Samuel, E.E., . . . . .	Axtell.
Ruth, B. Alvin, C.E., . . . . .	Moundridge.
Schooley, Sparks Sylvester, E.E., . . . . .	Kansas City.
Schwab, James West, Chem.E., . . . . .	Kansas City, Mo.
Schwartz, Theodore, C.E., . . . . .	Kansas City, Mo.
Segel, Joseph, E.E., . . . . .	McPherson.
Seibel, Clifford Winslow, Chem.E., . . . . .	Kansas City, Mo.
Shockley, Clyde Arthur, C.E., . . . . .	Kansas City, Mo.
Sihler, Albert Charles, E.E., . . . . .	Kansas City.
Simpson, Roy Livingston, E.E., . . . . .	Clay Center.
Staley, Harry, C.E., . . . . .	Richmond.
Swenson, Frank Duncan, C.E., . . . . .	Lindsborg.
Tangeman, William Henry, Mech.E., . . . . .	Newton.
Thompson, Wayne Douglas, E.E., . . . . .	Wichita.
Turkington, John Edward, E.E., . . . . .	Cherokee.
Underwood, Andrew Benonia, E.E., . . . . .	Kansas City, Mo.
Van Houten, Edwin A., Mech.E., . . . . .	Topeka.
Vawter, Milton Jamison, C.E., . . . . .	Arkansas City.
Ward, Richard B., C.E., . . . . .	Belleville.
Wentling, George Byron, Mech.E., . . . . .	Argentine.
Young, James Arthur, Mun. and San.E., . . . . .	Lawrence.

JUNIORS, 91.

## SOPHOMORES.

Alder, Grover Cecil, E.E., . . . . .	Leonardville.
Allen, Glenn Lee, Min.E., . . . . .	Lawrence.
Arnold, Leroy, E.E., . . . . .	Piedmont.
Baker, Stanley Bushnell, E.E., . . . . .	Cherryvale.
Baldwin, Ernest Joy, C.E., . . . . .	Cherryvale.
Barnes, Wilbur Hill, E.E., . . . . .	Kansas City.
Baughner, Howard Nathan, Mech.E., . . . . .	Kinsley.
Biddison, George F., C.E., . . . . .	Goodland.
Bliss, John Lawrence, C.E., . . . . .	Winfield.
Bolinger, Lyman E., C.E., . . . . .	Clearwater.
Brouk, Charles Ludvik, C.E., . . . . .	Wilson.
Brouk, James Anton, C.E., . . . . .	Wilson.
Brown, Loren Elden, E.E., . . . . .	Delphos.
Brown, Will E., C.E., . . . . .	Robinson.
Bunn, Herbert Lucien, C.E., . . . . .	Kansas City.
Butler, John Shadel, Mech.E., . . . . .	Kansas City, Mo.
Byers, William Berthier, Chem.E., . . . . .	Linwood.
Cadwell, Harold Vernon, Chem.E., . . . . .	Nowata, Okla.
Campbell, Fred Cooley, C.E., . . . . .	Poplar, Mont.
Cassingham, Chester Snyder, C.E., . . . . .	Warrensburg, Mo.
Cissna, Volney Judson, E.E., . . . . .	Fort Scott.
Clarke, Clarence Stephen, E.E., . . . . .	Springfield, Mo.
Cooper, William Wirt, C.E., . . . . .	Americus.
Cunnick, Paul Carlton, Mech.E., . . . . .	Lawrence.
Dimmitt, Clarence Elmer, E.E., . . . . .	Lawrence.
Dingelstedt, Otto Ernest, C.E., . . . . .	Lawrence.
Dodd, Leslie Harold, C.E., . . . . .	Langdon.
Duncan, Arthur Franklin, C.E., . . . . .	Chanute.
Elliott, Paul C., Mech.E., . . . . .	Lawrence.
Fairchild, Samuel Gilbert, Mech.E., . . . . .	Hutchinson.
Fecht, Arthur John, E.E., . . . . .	Kansas City.
Feierabend, Harold Herman, E.E., . . . . .	Atchison.
Fillmore, Benjamin DeWitt, Chem.E., . . . . .	Blue Rapids.
Fowler, Charles Vern, E.E., . . . . .	Lawrence.
Fuller, O. O., C.E., . . . . .	Geneseo.
Gates, William Adelbert, E.E., . . . . .	Logan.
Greenlees, Charles Robert, Min.E., . . . . .	Lawrence.
Hansen, Herbert C., E.E., . . . . .	Wellington.
Harsha, Luman McLaine, C.E., . . . . .	Partridge.
Hartman, John Milton, Mech.E., . . . . .	Junction City.
Hazen, Daniel Francis, E. and Mech.E., . . . . .	Lawrence.
Hellener, Earl Edgerton, E.E., . . . . .	Atchison.
Helm, Charles Frank, C.E., . . . . .	La Junta, Colo.
Home, Alva Earl, C.E., . . . . .	Beloit.

## SOPHOMORES—concluded.

Hornaday, Waller Chenault, . . . . .	Fort Scott.
Hostetler, Curtis B., Min.E., . . . . .	Belleville.
Hunter, Earl William, Mech.E., . . . . .	Lawrence.
Jackson, Lyman Lewis, C.E., . . . . .	Clay Center.
Johnson, Amos Daniel, Min.E., . . . . .	Kansas City, Mo.
Jones, Albert Roscoe, Chem.E., . . . . .	Pittsburg.
Keyser, Grier Milton, E.E., . . . . .	Wilson.
King, Harlan Dwight, C.E., . . . . .	Cawker City.
Kinnear, Lawrence Wilson, C.E., . . . . .	Kansas City, Mo.
Kleihege, Henry Joseph, E.E., . . . . .	Bison.
LaRue, James Eugene, C.E., . . . . .	Lawrence.
Loomis, Crosby G., E.E., . . . . .	Council Grove.
Malcolmson, William Jack, Mech.E., . . . . .	Kansas City, Mo.
Maltby, Arthur Raymond, E.E., . . . . .	McPherson.
Marsh, Hollis Field, Mech.E., . . . . .	Kansas City.
Martin, Virgil L., Mech.E., . . . . .	Douglass.
Moeller, William Henry, E.E., . . . . .	Galena.
Moore, Leo George, Chem.E., . . . . .	Lawrence.
Moore, Raymond Francis, E.E., . . . . .	Atchison.
Musselman, John Christian, E.E., . . . . .	Kansas City, Mo.
Nigh, Claude Hubbard, Mech.E., . . . . .	Iola.
Nofsinger, Lewis Esmonde, Mech.E., . . . . .	Kansas City, Mo.
Oman, Carl, E.E., . . . . .	Garnett.
Parker, James, Min.E., . . . . .	Independence.
Parkhurst, Ivan Paul, Chem.E., . . . . .	Kinsley.
Phillips, Harvey Addison, Mech.E., . . . . .	Greeley, Colo.
Pinkerton, Howard King, Mech.E., . . . . .	Olathe.
Poundstone, Leon Harmon, E.E., . . . . .	Blackwell, Okla.
Rankin, Donald Mark, C.E., . . . . .	Paola.
Reid, Donald, E.E., . . . . .	Kansas City, Mo.
Reymond, Paul LeGrand, Mech.E., . . . . .	Kansas City, Mo.
Richards, Addison, E.E., . . . . .	Kansas City, Mo.
Richardson, Encell Campbell, Mun. and San.E., . . . . .	Lawrence.
Riley, Lee, jr., C.E., . . . . .	Kansas City.
Scaggs, Claude Albertine, C.E., . . . . .	Winona.
Seger, Ralph Logan, Min.E., . . . . .	Topeka.
Seibert, John Franklin, E.E., . . . . .	Augusta.
Severns, William H., Mech.E., . . . . .	Garnett.
Siegfried, Harry, E.E., . . . . .	Burlington.
Siegrist, Ivan Sullivan, C.E., . . . . .	Kansas City, Mo.
Smith, John Rhodes, E.E., . . . . .	Sterling.
Soelter, Herbert Fred, C.E., . . . . .	Wamego.
Sowers, Claude Edward, E.E., . . . . .	Wichita.
Sparling, John Edgar, E.E., . . . . .	Oneida.
Spray, Chester Allen, Mech.E., . . . . .	Lawrence.
Sproull, John Steele, E.E., . . . . .	Lawrence.
Stacey, William Arthur, C.E., . . . . .	Abilene.
Stephenson, John Robert, . . . . .	Montreal, Canada.
Strachan, Norman Fraser, C.E., . . . . .	Eudora.
Tholen, Charles Webster, Mech.E., . . . . .	Leavenworth.
Thomas, Raymond Sankey, E.E., . . . . .	Lawrence.
Veirs, Cyrus Robb, C.E., . . . . .	Independence.
Walker, Oliver David, C.E., . . . . .	Kansas City, Mo.
Weaver, Glenn Shellborn, E.E., . . . . .	Concordia.
Weidlein, William Dale, C.E., . . . . .	Olathe.
Welch, Gordon Burnett, Chem.E., . . . . .	Crs.
Welsh, Harry Esmond, Mech.E., . . . . .	Chanute.
Wise, Lyle Deards, E.E., . . . . .	Lawrence.

SOPHOMORES, 102.

## FRESHMEN.

Adams, Clyde Melvin, C.E., . . . . .	Topeka.
Ames, Edwin Lee, E.E., . . . . .	Caldwell.
Baker, Emile George, Chem.E., . . . . .	Kansas City.
Barth, Leon John, E.E., . . . . .	Broken Arrow, Okla.
Bates, Elmer Eugene, . . . . .	Perry.
Bayles, Charles Gilbert, . . . . .	Carrison.
Beiser, Fred Vincent, . . . . .	Lewis.
Benedict, Frank Griffith, Mech.E., . . . . .	Lawrence.

FRESHMEN—*continued.*

Benn, Lawrence Augustine, . . . . .	La Crosse.
Bennett, James Leroy, Chem.E., . . . . .	Carthage, Mo.
Berwick, Jo Douglas, . . . . .	Lawrence.
Biddle, William Humphrey, C.E., . . . . .	Leavenworth.
Blachly, Fred Eben, Chem.E., . . . . .	Herington.
Bockemohle, Clinton Linus August, . . . . .	Ellinwood.
Bocker, Leon Morris, E.E., . . . . .	Solomon.
Boman, Arthur Leroy, C.E., . . . . .	Chanute.
Bracewell, Russell Starkey, Chem.E., . . . . .	Kincaid.
Bradbridge, Ernest Eugene, Min.E., . . . . .	Hutchinson.
Brown, Hugh Reid, Min.E., . . . . .	Altoona.
Brown, Nathan Wallace, C.E., . . . . .	Lawrence.
Buck, Walter Philip, C.E., . . . . .	Wichita.
Burnham, Elmer Jay, E.E., . . . . .	Kansas City.
Cadmus, Walter Gordon, jr., Mech.E., . . . . .	Parsons.
Chapple, James Melvin, E.E., . . . . .	Troy.
Charpie, Samuel James, E.E., . . . . .	Kingman.
Clark, Irving Henry, . . . . .	Mound City.
Clayton, Gilbert Merton, C.E., . . . . .	Hill City.
Constant, Clyde Stanley, Mech.E., . . . . .	Lawrence.
Cook, Dwyer Daniel, E.E., . . . . .	Kansas City, Mo.
Curfman, Harry Monroe, E.E., . . . . .	Winfield.
Davison, Elmer Joseph, E.E., . . . . .	Bonner Springs.
Day, Lloyd Joseph, E.E., . . . . .	Glen Elder.
Degen, Fred Samuel, Mech.E., . . . . .	Kansas City, Mo.
Dingman, Oscar Aldrich, Min.E., . . . . .	Emporia.
Dunham, Chester Adams, Mech.E., . . . . .	Galena.
Duvall, Eugene Norlin, E.E., . . . . .	Hutchinson.
Ellis, Paul Ovid, E.E., . . . . .	Parsons.
Epley, Ernest Norton, C.E., . . . . .	Lawrence.
Ferris, Alexander Thomas, Chem.E., . . . . .	Mt. Vernon, N. Y.
Finley, Delbert Dale, Min.E., . . . . .	Wellington.
Foote, Don Dorris, . . . . .	Spring Hill.
Francis, Chester M., . . . . .	Cherryvale.
Galer, Robert McDonald, E.E., . . . . .	Nowata, Okla.
Glaze, Carl Wilbur, Mech.E., . . . . .	Lyons.
Goddard, Ford Leonard, . . . . .	Leavenworth.
Gordon, Herbert Carroll, . . . . .	Kansas City, Mo.
Gray, Alfred, C.E., . . . . .	Paxico.
Gregory, William Edward, . . . . .	Cottonwood Falls.
Griffiths, Claude Irvin, E.E., . . . . .	Lawrence.
Groft, Andrew Joshua, C.E., . . . . .	Wa Keeney.
Harding, Clarence William, C.E., . . . . .	Leavenworth.
Harding, Gilman Case, C.E., . . . . .	Leavenworth.
Hartman, Fritz Vincent, Mech.E., . . . . .	Junction City.
Hartwell, George Lawrence, Mech.E., . . . . .	Jamestown.
Haskin, Fletcher, E.E., . . . . .	Frankfort.
Heisler, Paul Kintzing, . . . . .	St. Marys.
Hollowell, A. Cooley, C.E., . . . . .	Wichita.
Holmes, Charles Bolivar, C.E., . . . . .	Lawrence.
Hughes, Alfred Samuel, E.E., . . . . .	Lawrence.
Hunter, Hayden Records, C.E., . . . . .	Bucklin.
Hurd, Harold Baldwin, Chem.E., . . . . .	Kansas City, Mo.
Hurst, Leonard Lee, Min.E., . . . . .	Emporia.
Jackson, Lloyd Earl, . . . . .	Chanute.
Jespersen, Conrad Morris, E.E., . . . . .	Lawrence.
Jones, Forrest Emery, Mech.E., . . . . .	Neodesha.
Jones, Vinton, Chem.E., . . . . .	Kansas City, Mo.
Keeling, Ross Custer, C.E., . . . . .	Oakley.
Lackey, Donald Haldane, . . . . .	Peabody.
Laizure, Lawellin Boyd, . . . . .	Lawrence.
Lauterbach, William John, Chem.E., . . . . .	Pekin, Ill.
Lentz, Roscoe Vernon, E.E., . . . . .	Kansas City, Mo.
Lindley, Clifford Benjamin, E.E., . . . . .	Medicine Lodge.
Logan, Carl Gillies, . . . . .	Kansas City, Mo.
MacDonald, Joseph C., Mech.E., . . . . .	Beloit.
March, John Ruthven, Arch., . . . . .	Lawrence.
Maret, Frank Forest, E.E., . . . . .	Haviland.

## FRESHMEN—concluded.

Maris, Clyde, Mech.E., . . . . .	Stockton.
Marsh, George William, jr., C.E., . . . . .	Kincaid.
Martin, Charles Clements, . . . . .	Emporia.
Melvin, Laighton Russell, Chem.E., . . . . .	Iola.
Miller, Frank Herbert, C.E., . . . . .	Clay Center.
Minger, Fred Floyd, C.E., . . . . .	Sabetha.
Murphy, Willard David, E.E., . . . . .	Lawrence.
McKnight, Harry Ray, . . . . .	Cherryvale.
McNeil, Frederick, C.E., . . . . .	Bonner Springs.
Nelson, Stanley Barrows, E.E., . . . . .	Paris, Tex.
Nutting, Floyd Lester, Mech.E., . . . . .	Russell.
Painter, Charles Jesse, C.E., . . . . .	Barclay.
Payne, Carmen Green, C.E., . . . . .	Olathe.
Penn, Umphrey Marshall, C.E., . . . . .	Atchison.
Pierce, Norman Jean, C.E., . . . . .	White Cloud.
Poland, Clare Archie, C.E., . . . . .	Atchison.
Potter, Orrin Thomas, Mech.E., . . . . .	Kansas City, Mo.
Preyer, Frank Arthur, Min.E., . . . . .	Lawrence.
Putman, Glen Harold, Mech.E., . . . . .	Lawrence.
Ralstin, Henry William, Min.E., . . . . .	Wichita.
Ray, James Iven, E.E., . . . . .	Jamesport, Mo.
Rutherford, Lawrence Winfield, C.E., . . . . .	Douglass.
Samson, Henry Ernest, . . . . .	Quinter.
Sanders, Earl Russell, E.E., . . . . .	Lawrence.
Schmidt, Karl W., Chem.E., . . . . .	Kansas City, Mo.
Scott, Fred Paul, E.E., . . . . .	Parsons.
Serviss, Roy Alba, . . . . .	Linwood.
Sewell, Arthur Antella, . . . . .	Kansas City.
Sheldon, Roy Emmor, . . . . .	Paola.
Smith, Lawrence Parke, . . . . .	Carthage, Mo.
Smith, Richard King, . . . . .	Kansas City, Mo.
Smith, Willis Otis, E.E., . . . . .	Logan.
Spangler, Karl Bauman, . . . . .	Lawrence.
Sterling, Allen, Mun. and San.E., . . . . .	Lawrence.
Stinson, Julian Thornton, C.E., . . . . .	Tecumseh.
Stocks, George Benjamin, E.E., . . . . .	Blue Rapids.
Stotts, Glen P., E.E., . . . . .	Yates Center.
Streeter, Frank, jr., . . . . .	Muscotah.
Sweeney, Ben A., Min.E., . . . . .	Kansas City, Mo.
Tait, Ralph Shannon, E.E., . . . . .	Fort Scott.
Templin, Richard Lawrence, C.E., . . . . .	Minneapolis.
Terrill, Edmund Janon, . . . . .	Lawrence.
Thomas, William Newton, Min.E., . . . . .	Kansas City.
Tobin, Clarence Lewis, E.E., . . . . .	Frankfort.
Truesdell, Sidney Augustus, E.E., . . . . .	Wathena.
Van Dyke, Ernest Henry, E.E., . . . . .	Cherryvale.
Van Velson, Wilmer Caleb, . . . . .	Garnett.
Villepique, Paul Fabrian, . . . . .	Chanute.
Wade, Hugh Reese, E.E., . . . . .	Kansas City, Mo.
Walker, Charles Frederick, E.E., . . . . .	Lawrence.
Wallack, Austin Henry, E.E., . . . . .	Jennings.
Weibel, Leo N., E.E., . . . . .	Lawrence.
Whitten, Willis George, . . . . .	Marysville.
Wiedemann, Franz Gustav, Min.E., . . . . .	Lawrence.
Yoe, George Harris, C.E., . . . . .	Independence.
Ziegler, William Ray, E.E., . . . . .	Lawrence.

FRESHMEN, 132.

## SPECIALS.

Bryan, Ora Elwood, . . . . .	Lawrence.
Carlton, Edgar Dale, C.E., . . . . .	Garden City.
Cotton, Almont Burton, . . . . .	Lawrence.
Dunn, Horace Charles, C.E., . . . . .	Ottawa.
Heidenreich, Edwin Lee, jr., C.E., . . . . .	Kansas City, Mo.
Hubbell, Robert Chester, Chem.E., . . . . .	Fredonia.
Katsuno, Sadaharn, . . . . .	Tokyo, Japan.
Pauly, Howard Clyde, E.E., . . . . .	Kansas City, Mo.
Pike, Harry F., C.E., . . . . .	Fall River.



## SPECIALS—concluded.

Rohrer, Walter Elmer, Min.E., . . . . .	McAlester, Okla.
Smith, Guy Chester, . . . . .	Lawrence.
Smith, Lewis Benedict, Min.E., . . . . .	Ogden, Utah.
Steele, Horace Eaton, . . . . .	Lawrence.
Stephens, Edward Everett, E.E., . . . . .	Bethel.
Uhrig, Fred Joseph, . . . . .	Kansas City, Mo.
Waterman, Robert Wood, C.E., . . . . .	Phoenix, Ariz.
Wood, Clayton Vaughn, C.E., . . . . .	Burlingame.

SPECIALS, 17.

## School of Fine Arts.

### SENIORS.

Alford, Sylvia Daphne	Lawrence.
Barkdull, Blanche	Lawrence.
Barkdull, Josephine	Lawrence.
Briggs, Arta Priscilla	Lawrence.
Buchanan, Mrs. Olive	Chanute.
Burgess, Bertha Eunice	Douglass.
Corle, Ruth Ethel	Lawrence.
Eberle, Mona Newton	Lawrence.
Foster, Neva June	Lawrence.
Fredrick, Margaret Alice	Bonner Springs.
Harshberger, Audrey	Lawrence.
Hazelrigg, Mildred	Topeka.
Hess, Ethel	Topeka.
Holcomb, Jessie	Parsons.
Ishmael, Caroline Anna	Kiowa.
Jackson, Clara Elizabeth	Columbus.
Johnston, Arthur	Lawrence.
Mitchell, Hannah Eileen	Lawrence.
Morin, Mary Maude	Williamstown.
McCammon, Josephine Y.	Lawrence.
Ogden, Geneva S.	Lawrence.
Palmer, Mary Margaret	Lawrence.
Pendleton, Laura Sophie	Lawrence.
Reynolds, Cora	Lawrence.
Ridenour, Lenna	Emporia.
Shuey, Bertha Marie	Lawrence.
Swayne, Ramona	Wamego.
Wells, Mrs. Ruth Swisher	Lawrence.
Zoellner, Maud Elizabeth	Tonganoxie.

SENIORS, 29.

### JUNIORS.

Bedford, Marion Page	Grand Rapids, Mich.
Brown, Lucille Crozier	Lawrence.
Gabriel, Edith Margaret	Topeka.
Garnsey, Edith Harriet	Kansas City, Mo.
Henry, Gladys Margaret	Lawrence.
Hyre, Florence	Lawrence.
Keith, Erma	Seneca.
Kuchera, Leora Bessie	Belleville.
LeSuer, Lida Charles	Lawrence.
Mackie, Elizabeth Elsie	Lawrence.
Matkins, Lillian Grace	Lawrence.
Miller, Edna Leone	Leavenworth.
Overstreet, Maria Leone	Blue Rapids.
Parrott, Lucy Lubel	Kansas City, Mo.
Shanks, Kate Elizabeth	Simpson.
Smith, Frances Mildred	Stockton.
Stevens, Bertha	Parsons.
Wolf, Vera Nell	Lawrence.

JUNIORS, 18.

### SOPHOMORES.

Blair, Mary Fay	Spring Hill.
Brown, Lo Alma	Lawrence.
Burnham, Ruth	Lawrence.
Carraher, Nelle	Kansas City, Mo.
Clayton, Clara Meacham	Great Bend.
Dawson, Hazel	St. John.
Ellsworth, Edith Myrtle	Cherryvale.
Fox, Ruth Clyda	Lawrence.

## SOPHOMORES—concluded.

Gilmore, Carrie Harrison, . . . . .	El Dorado.
Gurnea, Mary, . . . . .	Belleville.
Hinesley, Edith Elizabeth, . . . . .	Lawrence.
Jordan, May Helen, . . . . .	Lawrence.
Luckan, Charlotte Marguerite, . . . . .	Lawrence.
Lyon, Edna Charlotta, . . . . .	Lawrence.
Messick, Lodema Zelida, . . . . .	Hill City.
Miller, Bess, . . . . .	El Dorado.
Morgan, Dorothy Margaret, . . . . .	Clay Center.
Murray, Pauline, . . . . .	Wellington.
Pettit, Mildred Ester, . . . . .	Peabody.
Robbins, Leroy, . . . . .	Lawrence.
Smith, Charline, . . . . .	Lawrence.
Smith, Etta Augusta, . . . . .	Lawrence.
Staton, Ida Estella, . . . . .	Lawrence.
Strahm, Estelle, . . . . .	Sabetha.
Terrell, Grace Juanita, . . . . .	Gardner.
Underwood, Addie, . . . . .	Lawrence.
Whittemore, Anna, . . . . .	Waterville.
Wilson, Rhea Faye, . . . . .	Columbus.
Woolsey, Helen Clair, . . . . .	Lawrence.

SOPHOMORES, 29.

## FRESHMEN.

Anderson, Ruth Caroline, . . . . .	Lawrence.
Annadown, Emily, . . . . .	Lawrence.
Arnett, Mabel Wilma, . . . . .	Lawrence.
Benson, Bernice, . . . . .	El Dorado.
Chandler, Lora Elsie (Mrs.), . . . . .	Lawrence.
Churchill, Letha Estelle, . . . . .	Kansas City.
Clark, Merle Bertha, . . . . .	Ottawa.
Cooper, Edith Margaret, . . . . .	Lawrence.
Coston, Rachel, . . . . .	Topeka.
Davis, Helen Mar, . . . . .	Beatrice, Neb.
Davis, Ruth Seeley, . . . . .	Kansas City, Mo.
Dyke, Gladys Marie, . . . . .	Oklahoma City, Okla.
Fennell, Constance, . . . . .	Kansas City.
Gibbons, Vera Adaline, . . . . .	Anthony.
Gibbins, Winona Felicia, . . . . .	Lawrence.
Graybill, Marguerite E., . . . . .	Hutchinson.
Grimes, Mary Elizabeth, . . . . .	Paola.
Hamilton, Jane Foxe, . . . . .	Columbus.
Huffman, Genevieve Aleen, . . . . .	Abilene.
Hughes, Opal Mercedes, . . . . .	Lawrence.
James, Mildred Mary, . . . . .	Kansas City, Mo.
Johnson, Arizona Vivian, . . . . .	Marysville.
Ketels, Marie, . . . . .	Lawrence.
Kreider, Lucile Minerva, . . . . .	Lawrence.
Larsen, Victor R., . . . . .	Lawrence.
Longabaugh, Hazel Joy, . . . . .	Lawrence.
Lutz, Hattie Loretta, . . . . .	Jewell.
Lutz, Nellie Estell, . . . . .	Jewell.
Miller, Frank Adam, . . . . .	Kansas City.
Moses, Edith Agnes, . . . . .	Carthage, Mo.
Murray, Anna Elizabeth, . . . . .	Junction City.
Nutter, Florence Clark, . . . . .	Kansas City, Mo.
Olmstead, Mildred Frances, . . . . .	Lawrence.
Overman, Arlie Ethlyn, . . . . .	Lawrence.
Powell, Clara Gault, . . . . .	Lawrence.
Powell, Mary V., . . . . .	Lawrence.
Putnam, Elizabeth Wilson, . . . . .	Whiting, Ind.
Rudolph, Mrs. Rose Viola, . . . . .	Lawrence.
Russell, Irene, . . . . .	Kansas City.
Stewart, Crete, . . . . .	Kansas City, Mo.
Taber, Helen Frances, . . . . .	Holton.
Taylor, Nellie Corda, . . . . .	Earlville.
Walker, Ruth Virginia, . . . . .	Kansas City, Mo.
Weiss, Bertha, . . . . .	Sabetha.
Zutavern, Elsa Louise, . . . . .	Great Bend.

FRESHMEN, 45.

## SPECIALS.

Anderson, Mrs. G. E., . . . . .	Lenape,
Arnold, Lucille M., . . . . .	Ashland.
Barkdull, Blanche Anna, . . . . .	Lawrence.
Beavers, Mittie, . . . . .	Home City.
Becker, Edith Marguerite, . . . . .	Lawrence.
Benkelman, George Albert, . . . . .	St. Francis.
Bevan, Katherine, . . . . .	Concordia.
Bideau, Edith, . . . . .	Chanute.
Biggerstaff, Estelle, . . . . .	La Belle, Mo.
Boyles, Grace, . . . . .	Lawrence.
Burke, Esther Margaret, . . . . .	Lawrence.
Caldwell, Kate May, . . . . .	Lawrence.
Champlin, Mable Louise, . . . . .	Phillipsburg.
Charpie, Maybelle, . . . . .	Kingman.
Cooper, Gertrude Helen, . . . . .	Peabody.
Cox, Winifred Ora, . . . . .	Hays.
Crowe, Mrs. Eugenia, . . . . .	Lawrence.
Davis, Bryan Llewellyn, . . . . .	Fort Scott.
Davis, Margaret, . . . . .	Fort Scott.
Dunbar, Carl O., . . . . .	Hallowell.
Dunlap, Helen Adelene, . . . . .	Chillicothe, Ohio.
Eddie, Fern Elizabeth, . . . . .	Lawrence.
Ford, Creola Olive, . . . . .	Lawrence.
Gibb, Isabel Muriel, . . . . .	Lawrence.
Gibbins, Eula Fay, . . . . .	Kansas City, Mo.
Gilbert, Mabel E., . . . . .	Arkansas City.
Graves, Geraldine, . . . . .	Lawrence.
Gridley, John, . . . . .	Parsons.
Grignard, Aimee, . . . . .	New York City, N. Y.
Gufler, Augusta, . . . . .	Lawrence.
Hamilton, Idyl Maud, . . . . .	Weir.
Hase, Clara Augusta, . . . . .	Lawrence.
Fox, Margaret Agnes, . . . . .	Tonganoxie.
Harper, Margaret, . . . . .	Gage, Okla.
Hoyt, William V., . . . . .	Lawrence.
Hutchison, Mary Emily, . . . . .	Joplin, Mo.
Iliff, Clive Franklin, . . . . .	Lawrence.
Jarvis, Mary Ann, . . . . .	Arkansas City.
Karnes, Bertha Louella, . . . . .	Lawrence.
Keeler, Dorothy, . . . . .	Lawrence.
Kent, Isabelle Mary, . . . . .	Lawrence.
Kinslow, Gladys Hazel, . . . . .	Columbus.
Kneiper, Lillie, . . . . .	Hutchinson.
Kohman, Emma A., . . . . .	Dillon.
Lambe, Ruth, . . . . .	Lawrence.
Lambert, Ruth Ester, . . . . .	Baker.
Maddox, Rella Gertrude, . . . . .	Coffeyville.
Martindell, Donald, . . . . .	Lawrence.
Mitchell, Helen, . . . . .	Oklahoma City, Okla.
Moody, Mary Alexander, . . . . .	Girard.
Morton, Ruth, . . . . .	Tescott.
McCurdy, Mildred, . . . . .	Lawrence.
McFarlin, Mamie Cornelia, . . . . .	Lawrence.
McMillan, Ellen Marguerite, . . . . .	Kansas City.
Owings, Verdilla, . . . . .	Lawrence.
Perry, Eugene Schuyler, . . . . .	Wichita.
Petz, Gretchen, . . . . .	Windom.
Pickens, Mrs. Nellie, . . . . .	Lawrence.
Potwin, Elsie Mary, . . . . .	Lyons.
Pratt, Ina, . . . . .	Lawrence.
Pugh, Luella Patterson, . . . . .	Lawrence.
Ridenour, Lula Spiker, . . . . .	Emporia.
Ridgeway, Wayne, . . . . .	Kansas City.
Roberts, Mary Mildred, . . . . .	Stafford.
Robinson, James G., . . . . .	Viola.
Rowlands, Beatrice Arline, . . . . .	Lawrence.
Royer, Clifford Fry, . . . . .	Abilene.
Saile, Francis, . . . . .	Lawrence.



## SPECIALS—concluded.

Sheldon, Marjorie, . . . . .	El Dorado.
Shklar, Tillie, . . . . .	Kiowa.
Simons, Blanche Louise, . . . . .	Lawrence.
Smith, Alta Madaline, . . . . .	Lawrence.
Smith, Nettie Sylvia, . . . . .	Smith Center.
Spangler, Myra Edith, . . . . .	Lecompton.
Sterling, Hermione Archer, . . . . .	Lawrence.
Stewart, Theodosia, . . . . .	Hazelton.
Stimpson, Mrs. Franc, . . . . .	Lawrence.
Stokes, Lizzie, . . . . .	Coffeyville.
Thompson, Leila, . . . . .	Coffeyville.
Treworgy, Eleanor Griffin, . . . . .	Lawrence.
Tripp, Lena, . . . . .	Lawrence.
Van Eman, Edith, . . . . .	Leavenworth.
Veirs, Cyrus R., . . . . .	Independence.
Weirich, Erma, . . . . .	Fort Scott.
Wetzel, Pauline Opal, . . . . .	Lawrence.
Wickwire, Ed. S., . . . . .	Larned.
Wiedemann, Louise Augusta, . . . . .	Lawrence.
Wineinger, Viola M., . . . . .	White Cloud.
Wonder, Etura, . . . . .	Hiawatha.

SPECIALS, 89.

## School of Law.

### SENIORS.

Ahrens, Hanry Edward J., . . . . .	Belleville.
Babb, Benjamin Arthur, . . . . .	Lawrence.
Beezley, George Fawcett, . . . . .	Girard.
Bischoff, George D., . . . . .	Washington.
Bond, Jay Edward, . . . . .	Lawrence.
Bradley, John, . . . . .	Wellington.
Campbell, Edgar Wells, . . . . .	Seneca.
Columbia, Elmer W., . . . . .	Chetopa.
Curtis, Charles Cleveland, . . . . .	Lawrence.
Darraugh, Rialdo Allen, . . . . .	Kansas City, Mo.
Day, Vance Hinman, . . . . .	Kansas City, Mo.
Fast, Arthur Herman, . . . . .	Baldwin.
Frith, Gilbert Harvey, . . . . .	Emporia.
Hamner, William Edward, . . . . .	Rosedale.
Hannah, Jay Ransom, . . . . .	Tonkawa, Okla.
Harlan, Harold Eugene, . . . . .	Downs.
Harrold, Clyde Bernard, . . . . .	Ponca, Okla.
Hill, Thurman George, . . . . .	Independence.
Hoisington, Stanley Milo, . . . . .	Newton.
Hyames, Frank M., . . . . .	Lawrence.
Israel, Ruby Carl, . . . . .	Wichita.
Jackman, Reginald Pritchard, . . . . .	Wichita.
Johnson, Alex, . . . . .	Okmulgee, Okla.
Jones, Ben S., . . . . .	Lyons.
Kabler, Levi Lilburn, . . . . .	Kingman.
Kates, Melvin J., . . . . .	Newton.
King, Roscoe Leonard, . . . . .	Marion.
Lambert, Isaac E., jr., . . . . .	Emporia.
Martin, Merle Van Deveer, . . . . .	Hutchinson.
Martindell, Donald Cameron, . . . . .	Eureka.
Masemore, Willis J., . . . . .	Sterling.
Mattingly, Elmer Herbert, . . . . .	Sedan.
Miller, Geoffrey William, . . . . .	St. Marys.
Miller, J. Earl, . . . . .	Lawrence.
Mounts, Dayton Ray, . . . . .	Lawrence.
Muir, Donald, . . . . .	Harper.
McCarty, Alston Madden, . . . . .	Emporia.
McIntosh, Richard Edgar, . . . . .	Burns.
Ogden, Raymond Clifton, . . . . .	Lawrence.
Ott, Frederick William, . . . . .	Hamilton.
Owens, Robert Rohring, . . . . .	Horton.
Pardee, Benjamin Valentine, . . . . .	Baldwin.
Porter, Glenn, . . . . .	Wichita.
Relihan, Terrence D., . . . . .	Smith Center.
Resler, Leland M., . . . . .	Chanute.
Rice, Walter Scott, . . . . .	Athol.
Sears, Burton Peabody, . . . . .	Lawrence.
Shawver, Karl Victor, . . . . .	Osawatomie.
Shinn, Byron Lee, . . . . .	Chanute.
Snyder, Ira Clarence, . . . . .	Stockton.
Swancara, Frank, . . . . .	Blue Rapids.
Swenson, Cleve Lidstone, . . . . .	Junction City.
Theis, Frank Albert, . . . . .	Kansas City, Mo.
Wallace, Clark A., . . . . .	Kingman.
Warner, Orville H., . . . . .	Garden City.
Wellhouse, William Earl, . . . . .	Topeka.
Wikoff, Howard H., . . . . .	Oneida.
Wilson, France Q., . . . . .	Abilene.
Woodbury, Charles Putnam, . . . . .	Kansas City, Mo.
Woodbury, Harold Hicks, . . . . .	Kansas City, Mo.

## MIDDLES.

Adair, Hugh Rogers, . . . . .	Lawrence.
Allen, William Albert, . . . . .	Lawrence.
Baer, Milton David, . . . . .	Beloit.
Beeson, Ellwood Walter, . . . . .	Wichita.
Bierer, Samuel, jr., . . . . .	Hiawatha.
Boehm, Walter, . . . . .	Hutchinson.
Brown, George Lee, . . . . .	Atchison.
Brown, Loren Vaughn, . . . . .	Kansas City, Mo.
Burford, Lewis Wesley, . . . . .	Lawrence.
Cain, William Quiggan, . . . . .	Atchison.
Campbell, Robert James, . . . . .	Kansas City, Mo.
Clarke, Charles Williamson, . . . . .	Lawrence.
Crandall, Harry Cecil, . . . . .	Little River.
Davis, Ben Wesley, . . . . .	Eskridge.
Davis, Roy Clarence, . . . . .	Osage City.
Deichmann, Frederick A., . . . . .	Kansas City, Mo.
Delaney, Carl Andrew, . . . . .	Waterville.
Dolde, Henry Charles, . . . . .	Leavenworth.
Edmonson, Otis Milton, . . . . .	Winchester, Ill.
Edwards, Charles Leland, . . . . .	Hazelton.
Eisenmayer, Walter Charles, . . . . .	Springfield, Mo.
Ewald, Clem Howard, . . . . .	Lawrence.
Fisher, Harry Wilfred, . . . . .	Pleasanton.
Gorsuch, Harris Foster, . . . . .	Sharon Springs.
Graham, Findley, . . . . .	Hiawatha.
Gribble, Ulysses Allison, . . . . .	Arkansas City.
Griffin, Walter T., . . . . .	Lawrence.
Halliday, George Alvan, . . . . .	Topeka.
Hepworth, Richard Fields G., . . . . .	Burlingame.
Hicks, Carl Sidney, . . . . .	Lawrence.
Hoffman, John Christian, . . . . .	Enterprise.
Hughes, William Marshall, . . . . .	Lawrence.
Jacks, Fred Wilson, . . . . .	Wichita.
Jones, William I., . . . . .	Alma.
Keplinger, Lewis Wolfkill, . . . . .	Kansas City.
Killarney, Earl, . . . . .	Atchison.
Konantz, Charles Lynn, . . . . .	Fort Scott.
Lindsay, Roy O., . . . . .	Gilman City, Mo.
Magill, Robert Ward, . . . . .	Wichita.
McLain, Wray Ernest, . . . . .	Newton.
Nees, Paul Bertram, . . . . .	Independence.
Neibling, Carl Augustus, . . . . .	Holton.
Nesbitt, Frank W., . . . . .	Garnett.
Norris, William Sidney, . . . . .	Lawrence.
Rambo, Hal Fletcher, . . . . .	Ottawa.
Ready, J. Wendell, . . . . .	Wellington.
Rogers, Roy Edward, . . . . .	Bronson.
Simmons, Kenneth Klipple, . . . . .	Baldwin.
Snyder, Harry Ernest, . . . . .	Dodge City.
Stephens, Charles Elmo, . . . . .	Lawrence.
Stoll, Sam Brown, . . . . .	Atchison.
Stuewe, Edward William, . . . . .	Alma.
Thorn, Furman Thomas, . . . . .	Wellsville.
Weede, Orlin Albert, . . . . .	Atchison.
Wightman, Wade Walter, . . . . .	Wichita.
Wilhelm, Louis Robert, . . . . .	Lawrence.
Wisdom, Glen Albert, . . . . .	Kansas City, Mo.
Woulfe, Robert, . . . . .	Newton.
Zook, Arthur David, . . . . .	Wellington.

MIDDLES, 59.

## JUNIORS.

Allison, George Lenoir, . . . . .	McPherson.
Ammons, Earl F., . . . . .	Arkansas City.
Ammons, Ernest Hugh, . . . . .	Arkansas City.
Anderson, Henry Clay, . . . . .	Kansas City, Mo.
Atherton, Oliver T., . . . . .	Emporia.
Baker, Arthur, . . . . .	Chanute.
Bantleon, Clifford Augustus, . . . . .	Kansas City.

## JUNIORS—continued.

Barrett, Wendell Johnston, . . . . .	Hoisington.
Betournay, Louis Wilbur, . . . . .	Concordia.
Bolin, Frank Earl, . . . . .	Junction City.
Bouron, Caleb Fletcher, . . . . .	Hiawatha.
Bramwell, Willis K., . . . . .	Belleville.
Brook, Isaiah John, . . . . .	Blue Mound.
Brown, Marley Roberts, . . . . .	Olathe.
Brumage, Everett, . . . . .	Beloit.
Buckles, Cale Olin, . . . . .	Peru.
Burnett, Clanrold A., . . . . .	Girard.
Burton, George Francis, . . . . .	Parsons.
Butler, William Lilliard, . . . . .	Kansas City, Mo.
Buxton, Lewis Augustine, . . . . .	Kansas City, Mo.
Buzick, Alonson Ruckman, . . . . .	Sylvan Grove.
Calhoun, Harold Robert, . . . . .	Fort Scott.
Campbell, Adrian Brooke, . . . . .	Baileytown, Tenn.
Carlton, Clarence Hays, . . . . .	Garden City.
Carter, Ledrue Garld, . . . . .	Lawrence.
Caswell, Arthur Bernard, . . . . .	Belleville.
Charlesworth, Lloyd Warren, . . . . .	Omaha, Neb.
Clark, Clement Francis, . . . . .	Wichita.
Clark, Russell H., . . . . .	Kansas City, Mo.
Cline, Owen Clark, . . . . .	Concordia.
Codding, John Sullivan, . . . . .	Westmoreland.
Conkey, Claude Oliver, . . . . .	Pleasanton.
Coolidge, James Roger, . . . . .	Smith Center.
Coombs, Edwin Seger, . . . . .	Kansas City, Mo.
Cox, Richard Albert, . . . . .	Lawrence.
Crow, James Frank, . . . . .	Kansas City, Mo.
Cubbison, Paul Kenneth, . . . . .	Kansas City.
Curray, Chris. Gilmore, . . . . .	Larned.
Darnall, Charles Bliss, . . . . .	Kansas City.
Davis, Frank E., . . . . .	Lawrence.
DeBernardi, Albert, jr., . . . . .	Kansas City, Mo.
Dellinger, Rudolph Corley, . . . . .	Garnett.
DeLong, Hal P., . . . . .	Mena, Ark.
Detwiler, John Eli, . . . . .	Smith Center.
Dibble, Ivan Willis, . . . . .	Topeka.
Dousman, Donald James, . . . . .	Kansas City, Mo.
Dunham, Burney Malloy, . . . . .	Altoona.
Ewers, Edmond Everett, . . . . .	Topeka.
Ewers, Leland Mead, . . . . .	Topeka.
Fairchild, Charles Clement, . . . . .	Lawrence.
Finley, Milo Goodner, . . . . .	Kansas City.
Fischer, Floyd Edward, . . . . .	Wamego.
Ford, Herbert Ezra, . . . . .	Lawrence.
Fuller, W. Westle, . . . . .	Kansas City, Mo.
Fulton, Arthur Dean, . . . . .	Kansas City, Mo.
Gephart, Thomas Jesse, . . . . .	Oskaloosa.
Goldsworthy, Martin Wilbert, . . . . .	Lawrence.
Hall, Jean George, . . . . .	Waterville.
Hamilton, George Kenneth, . . . . .	Kansas City.
Hand, Hugh Hamlin, . . . . .	Parsons.
Hart, Bert Leland, . . . . .	Lakin.
Hatcher, Ward V., . . . . .	Cherryvale.
Heller, Harvey Augustus, . . . . .	Iola.
Higley, Harold J., . . . . .	Sterling.
Hissem, Frank Edgar, . . . . .	Ellsworth.
Hoffman, Walter Leonard, . . . . .	Enterprise.
Holloway, Webster Watterson, . . . . .	Hutchinson.
Holmes, Van Rensselaer, . . . . .	Emporia.
Howden, William Martin, jr., . . . . .	Skidmore, Mo.
Humphrey, Arthur S., . . . . .	Junction City.
Hurd, Bruce, . . . . .	Abilene.
Irwin, E. Ira, . . . . .	Guthrie, Okla.
Johnson, Chester Arthur, . . . . .	Alma.
Kelley, Milton William, . . . . .	Lawrence.
Kent, Joy Stevenson, . . . . .	Hutchinson.
Kimball, Webster Wagner, . . . . .	Parsons.



## JUNIORS—concluded.

Kirchner, Benjamin Jacob, . . . . .	Winfield.
LaCoss, Louis, . . . . .	Lawrence.
Lambert, Walter Andrew, . . . . .	Leavenworth.
Leventhal, Benjamin Heim, . . . . .	Rosedale.
Lewis, Gilbert McArthur, . . . . .	Kinsley.
Lindsay, Alva Frank, . . . . .	<i>Gilman City, Mo.</i>
Lynch, Joseph Edward, . . . . .	Herington.
Maris, Charles Franklin, . . . . .	Lawrence.
Markey, Hugh F., jr., . . . . .	Wichita.
Martin, Walter Bunn, . . . . .	Lawrence.
Martin, Webb D., . . . . .	<i>Fort Morgan, Colo.</i>
Merwin, John Milton, . . . . .	Lawrence.
Miller, Frank Ellwood, . . . . .	Topeka.
Miller, J. Glenn, . . . . .	Newton.
Miller, John Richards, . . . . .	La Cygne.
Moffitt, David Claire, . . . . .	Wichita.
Morris, Lawrence B., . . . . .	Junction City.
Morrow, Calvin, . . . . .	Washington.
Morton, William Marmaduke, . . . . .	<i>St. Joseph, Mo.</i>
Moses, Arthur C., . . . . .	<i>Kansas City, Mo.</i>
Murray, Oscar Roy, . . . . .	Herington.
McClelland, Frank Melancthon, . . . . .	Lawrence.
McClure, William Herbert, . . . . .	Republic.
McConnell, Ray Marmaduke, . . . . .	Lawrence.
McCoskrie, Winona Ivy, . . . . .	Chanute.
McGrath, Timothy Chrispen, . . . . .	Gardner.
Neal, Guy Olen, . . . . .	Bluff City.
Neibling, Seward Charles, . . . . .	Hiawatha.
Pfouts, Ralph Ulysses, . . . . .	Lancaster.
Poole, Will Harvey, . . . . .	Galena.
Redmond, Roscoe R., . . . . .	Ottawa.
Reid, Roderick Vincent, . . . . .	Clay Center.
Rhine, Orin Milton, . . . . .	Washington.
Royer, Paul Henry, . . . . .	Abilene.
Samuel, Lee Remington, . . . . .	Topeka.
Schnacke, Francis D., . . . . .	Topeka.
Schnierle, Herbert Alden, . . . . .	Kansas City.
Schwinn, William Herschel, . . . . .	Wellington.
Scott, William Caesar, . . . . .	Kansas City.
Shive, John W., . . . . .	Burrton.
Small, Edward Lorenzo, . . . . .	Lawrence.
Smith, Eugene Bryan, . . . . .	Lawrence.
Smith, Lawrence Powers, . . . . .	Kansas City.
Smith, Lester Lloyd, . . . . .	Chanute.
Smith, Peter S., . . . . .	Shawnee.
Sommers, Herbert C., . . . . .	Abilene.
Sowers, Clarence Ralph, . . . . .	Wichita.
Spake, Ralph Emmett, . . . . .	Kansas City.
Spellings, Charles S., . . . . .	<i>Kansas City, Mo.</i>
Steeper, Bert, . . . . .	Lawrence.
Sterns, Frank, . . . . .	Hiawatha.
Stewart, Clarence Churchill, . . . . .	Baldwin.
Stockton, Raymond, . . . . .	Rosedale.
Stuckey, George H., . . . . .	Formoso.
Sullivan, Clifford, . . . . .	Burrton.
Surber, Paul Dwight, . . . . .	Independence.
Teed, Albert Schermerhorn, . . . . .	Hutchinson.
Tinder, Loyal Stanley, . . . . .	Parsons.
Trousdale, Walter Joseph, . . . . .	Newton.
Vilato, Jose Eleno, . . . . .	Lawrence.
Von Schrittz, Guy White, . . . . .	Coldwater.
Watt, William Edward, . . . . .	Augusta.
Welsh, Edgar Chauncey, . . . . .	<i>Kansas City, Mo.</i>
White, Benjamin Edwin, . . . . .	Ada.
White, Malberne Hance, . . . . .	Pittsburg.
Wilson, Harold Wesley, . . . . .	Horton.
Wurster, Charles Leighton, . . . . .	Wichita.

SPECIALS.

Black, Hal M., . . . . .	Wichita.
Henry, Victor George, . . . . .	Wichita.
Holmes, Winn Earl, . . . . .	Wichita.
Moon, Arthur, . . . . .	Lawrence.
McCaskill, Paul Phillip, . . . . .	Parsons.
Williams, Dick, . . . . .	Concordia.

SPECIALS, 6.

## School of Pharmacy.

### GRADUATE.

Moore, Fred W., . . . . . Lawrence.

GRADUATES, 1.

### SENIORS.

Atwood, Mary Ethel, . . . . .	Clay Center.
Benkelman, Charles Adam, . . . . .	St. Francis.
Berger, Samuel I., . . . . .	Medford, Okla.
Bradley, Harold, . . . . .	Carney.
Britt, Luther Talmage, . . . . .	Randlett, Okla.
Carpenter, Myron Woodson, . . . . .	Clearwater.
Cramer, Charles C., . . . . .	Gardner.
Early, James Bernard, . . . . .	Medford, Okla.
Humes, George Markley, . . . . .	Bunker Hill.
Jones, Arthur Francis, . . . . .	Moline.
Kuebler, Leon, . . . . .	Gridley.
Mattson, Lillie Merle, . . . . .	Elsmore.
May, Nick Joseph, . . . . .	Andale.
Metz, LeRoy, . . . . .	Sabetha.
Purcell, Audray Lavery, . . . . .	Leavenworth.
Roose, Karl Louis, . . . . .	McCune.
Sherrard, Olive Elizabeth, . . . . .	Kansas City, Mo.
Smith, Ernest Rolland, . . . . .	Hartford.
Stevenson, Arthur Earl (four-year), . . . . .	Lawrence.
Wedel, Milford Norman, . . . . .	Moundridge.

SENIORS, 20.

### JUNIORS.

Adair, William Wallace, . . . . .	Lawrence.
Berquist, Arthur Nucleus, . . . . .	Marquette.
Boyd, Ethel, . . . . .	Glen Elder.
Brice, William Harvey, . . . . .	Glen Elder.
Bryant, Jesse, . . . . .	Perry.
Buckley, Delmar M., . . . . .	Lawrence.
Cipra, Winslow Joseph, . . . . .	Holyrood.
Crane, Albert Brown, . . . . .	Osage City.
Ebnotner, James Raymond, . . . . .	Downs.
Egbert, Dwight Gilbert, . . . . .	Ness City.
Etter, Ross Addison, . . . . .	McPherson.
Fitch, Nolan Alvin, . . . . .	Oakhill.
Fourd, James Silas, . . . . .	Kansas City, Mo.
Gray, Ilas Don, . . . . .	Le Roy.
Gray, Moses Nathaniel, . . . . .	Lawrence.
Gsell, W. Earl, . . . . .	Olathe.
Hightower, Sylvester Elmore, . . . . .	Kansas City.
Hill, Howard William, . . . . .	Elsmore.
Killian, Bruce, . . . . .	Gardner.
King, Fritz John, . . . . .	Enterprise.
Kurtz, David Harvey, . . . . .	Fort Scott.
Lee, Charles Oren (four-year), . . . . .	McCune.
Lewellen, Willard, . . . . .	Gaylord.
Maag, Oscar Lewis (four-year) . . . . .	Russell.
Marshall, Ruby Gilbert, . . . . .	Sylvia.
Monroe, Forest Herbert, . . . . .	Eudora.
Murphy, George Anthony, jr., . . . . .	Wichita.
Page, James Carl, . . . . .	Galena.
Parker, Henry Charles, . . . . .	Bonner Springs.
Paxson, Albert Grant, . . . . .	Great Bend.
Pool, Benjamin Earl, . . . . .	Norcatour.
Puckett, Thomas Marshall, . . . . .	Galena.
Sanford, Harry Byron, . . . . .	Hill City.
Saylor, Charles Jacob, . . . . .	Burton.

## JUNIORS—concluded.

Scholz, George Frederic, . . . . .	Frankfort.
Smith, Lynn, . . . . .	Spring Hill.
Sonnemann, Bert E., . . . . .	Blue Mound.
Steinhauer, Louis Edward, . . . . .	Leavenworth.
Tompkins, Carrie Baby, . . . . .	Lawrence.
Tonn, Martin Ernest, . . . . .	Haven.
Vickers, Aldrurid John, . . . . .	Liberal.
Warren, Leonard Douglass, . . . . .	Topeka.
Wright, Edna Geneva, . . . . .	Coffeyville.
Wright, Reanna Mae, . . . . .	Coffeyville.
Ziegelasch, Karl Robert, . . . . .	Junction City.

JUNIORS, 45.

## SOPHOMORES.

Bye, Ora Dean, . . . . .	Garnett.
Gantenbein, Fred A., . . . . .	Dillon.
Gleed, Clarence Augusta, . . . . .	Lawrence.
Pearl, George Andrew, . . . . .	Lakin.
Powell, Byrd Oscar, . . . . .	Adair, Okla.
Speck, Harry Orval, . . . . .	Galatia.
Stewart, William, . . . . .	Clay Center.
Treece, Elbert Lee, . . . . .	Centerville.
Wheeler, Jessie F. (four-year), . . . . .	Rozel.
Wickwire, Edward Giles, . . . . .	Larned.
Wylder, Lester Wesley, . . . . .	Oberlin.

SOPHOMORES, 11.

## FRESHMEN.

Burtch, Euly H. (four-year), . . . . .	Humboldt.
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FRESHMEN, 1.



## School of Medicine.

### FOURTH YEAR.

Barrett, Frank Edward, . . . . .	Kansas City.
Brakebill, Martin Luther, . . . . .	Savonburg.
DeMand, John Wesley, . . . . .	Wichita.
DeMand, Milton Henry, . . . . .	Wichita.
Dennie, Charles Clayton, . . . . .	Hillsdale.
Finney, Guy, . . . . .	Wamego.
Fitzsimons, William Thomas, . . . . .	Kansas City, Mo.
Flack, Frank Leroy, . . . . .	Longton.
Gibson, Edward Thomas, . . . . .	Kansas City.
Hecker, Friedrich Alexander, . . . . .	Kansas City, Mo.
Magill, Clyde, . . . . .	Andover.
McCarty, Virgil Warren, . . . . .	Lawrence.
Morley, Fred Henry, . . . . .	Kansas City.
Owens, Patrick Henry, . . . . .	Chanute.
Zugg, Clarence Logan, . . . . .	Kansas City.

FOURTH YEAR, 15.

### THIRD YEAR.

Hale, Arthur Ernest, . . . . .	Norton.
Layton, Roy Wilfred, . . . . .	Kansas City.
Maple, Frank Fulton, . . . . .	Perth.
Myers, Joseph W., . . . . .	Galva.
Quiring, Walter O., . . . . .	Newton.
Simon, William E., . . . . .	Garnett.
Smith, Delbert O., . . . . .	Valencia.
White, Edwin Clay, . . . . .	Kansas City, Mo.
Wright, George Leroy, . . . . .	Linwood.

THIRD YEAR, 9.

### SECOND YEAR.

Berger, Harry Calvin, . . . . .	Halstead.
Curtis, Paul Everard, . . . . .	Lawrence.
Earnest, Clarence, . . . . .	Washington.
Emerson, Herbert William, . . . . .	Lawrence.
Ewald, Paul Peter, . . . . .	Lawrence.
Foncannon, Frank, . . . . .	Emporia.
Henshall, James Edgar, . . . . .	Osborne.
Hoffman, Robert Lee, . . . . .	Ellsworth.
Johnson, John Carlisle, . . . . .	Formoso.
Kubik, Charles L., . . . . .	Caldwell.
LeMoine, Albert Napoleon, . . . . .	Concordia.
Maxwell, Herbert Spencer, . . . . .	Braddyville, Iowa.
Mundell, Walter N., . . . . .	Hutchinson.
Sheppard, Cyril E., . . . . .	Wellsville.
Wallace, M. Edna, . . . . .	Stafford.
Wheeler, LeRoy Jay, . . . . .	Wa Keeney.
Wilburn, Homer Vernon, . . . . .	Lawrence.

SECOND YEAR, 17.

### FIRST YEAR.

Anderson, Clara, . . . . .	Garland.
Athay, Roland Milton, . . . . .	Lawrence.
Beyer, Adolph H., . . . . .	Inman.
Brothers, Edmon Q., . . . . .	Winfield.
Broyles, Glen Hunt, . . . . .	Bethany, Mo.
Campbell, John R., . . . . .	Meade.
Chesky, Victor Ernest, . . . . .	Nickerson.
Darland, Mary Edna, . . . . .	Lawrence.
Davis, Eugene Wilson, . . . . .	Chapman.

## FIRST YEAR—concluded.

Drake, Paul McCheyne, . . . . .	<i>New Plymouth, Idaho.</i>
Duer, Guy Robert, . . . . .	Nickerson.
Fessenden, Ersel Meal, . . . . .	Emporia.
Hazzard, Lawrence Rosseau, . . . . .	Wichita.
Hite, Ora Floy, . . . . .	Merriam.
Hoskins, Elmer Ray, . . . . .	Lawrence.
Jordan, Warren Harper, . . . . .	Caldwell.
Kelly, Joseph Patrick, . . . . .	<i>Kansas City, Mo.</i>
Liston, Odus, . . . . .	Altamont.
Lodge, Edmund Anderson, . . . . .	Erie.
Maddox, Walter Henry, . . . . .	Lawrence.
Miller, Warren Mahlon, . . . . .	Sabetha.
Monahan, Elmer Perry, . . . . .	Baldwin.
McGill, Lucien Robert, . . . . .	Hill City.
Nichols, William Schmidlapp, . . . . .	<i>Arkansas City.</i>
Sawhill, John Elden, . . . . .	Concordia.
Schwein, Bertha O., . . . . .	Lawrence.
Sharp, Elwood Armstrong, . . . . .	Council Grove.
Snoddy, George Samuel, . . . . .	Emporia.
Syfert, Alva C., . . . . .	Ashton.
Twyman, George Thomas, . . . . .	<i>Independence, Mo.</i>
Van Eman, Andrew Stacey, . . . . .	Leavenworth.
Walker, Guy R., . . . . .	Hutchinson.
Welsh, Rex E., . . . . .	Clifton.
Wineinger, William Wesley, . . . . .	White Cloud.

FIRST YEAR, 34.

## SPECIALS.

Benner, James William, . . . . .	Lawrence.
Elliott, James Ryan, . . . . .	Linn.
Kimble, Frank Elwood, . . . . .	Mulvane.
Schmidt, Edwin C., . . . . .	Moundridge.

SPECIALS, 4.

## Training School for Nurses.

## CLASS OF 1912.

Alfrey, Kate, . . . . .	<i>Blad, Mo.</i>
Blunt, Norma, . . . . .	Greeley.
Kjellander, Beda, . . . . .	<i>Kansas City.</i>
Roberts, Nelle, . . . . .	Horton.
Taylor, Mabel Alice, . . . . .	Sedgwick.

## CLASS OF 1913.

Anthony, Frances Ruth, . . . . .	Nortonville.
Bates, Mary K., . . . . .	Garden City.
Carter, Marian Ruth, . . . . .	<i>Warsaw, Mo.</i>
Leonard, Lulu, . . . . .	Earlton.

## CLASS OF 1914.

Anderson, Mildred, . . . . .	Garland.
Filkin, Edna, . . . . .	Rosedale.
Haines, Ethel, . . . . .	Altamont.
Hall, Zoa, . . . . .	Elmdale.
Jeffries, Mary, . . . . .	Lawrence.
McKay, Grace B., . . . . .	Natoma.
Woodward, Zeta, . . . . .	Piper.

## School of Education.

### GRADUATES.

Beal, Arthur F.,	Lawrence.
Brooks, Martin K.,	Lawrence.
Brower, Lyle I.,	Pittsburg.
Colline, Bertha Elizabeth,	McPherson.
Hall-Quest, Alfred L.,	Parkville, Mo.
Hiebert, Peter C.,	Hillsboro.
Hull, Eva P.,	Lawrence.
Kiesewetter, Bruno,	Berlin, Germany.
Kleihege, George W.,	La Crosse.
Steven, Effie Louise,	Lawrence.
Stevens, Lois,	Lawrence.

GRADUATES, 11.

### SENIORS.

Angle, Brownie,	Kansas City.
Armstrong, Nan,	Lawrence.
Baker, Gazzelle,	Cherryvale.
Baumgartner, Rachel A.,	Halstead.
Biddison, Marcia Dorothea,	Goodland.
Calene, Leona Camilla,	Sylvan Grove.
Carmichael, Fay,	Lawrence.
Carmichael, Madge,	Lawrence.
Carpenter, W. Weston,	Lawrence.
Dack, Bertha Louise,	Lyons.
Dalton, Nellie Marvin,	Lawrence.
Degen, Esther,	Kansas City, Mo.
Draper, Mary Eleanor,	Oswego.
Elliott, Gladys B.,	Lawrence.
Ellis, Katherine,	Pratt.
Farnsworth Chester G.,	Wichita.
Ferguson, Myrtle,	Kansas City.
Figley, Angeline,	Lawrence.
Figley, Gertrude,	Lawrence.
Fisher, Nancy Marie,	Lyons.
French, Will,	Pittsburg.
Griffiths, Glendale,	Lawrence.
Gustafson, Takla Cecilia,	Lawrence.
Hanson, Anna H.,	Lawrence.
Heavy, Elizabeth Katherine,	Leavenworth.
Hood, Theodore,	Kiowa.
Humphrey, Myrtle,	Russell.
Hyre, Myrtle,	Lawrence.
Ingels, Pauline,	Lawrence.
Ise, Mary,	Lawrence.
Johnson, Delpha,	Randolph.
Johnston, Marion M.,	Lawrence.
Killarney, Margaret,	Atchison.
Kliewer, Herman Schmidt,	Newton.
Krueger, Alfred Paul,	Atchison.
Layne, Cedonia Zephyr,	Kansas City.
Lehman, Harvey C.,	Humboldt.
Malleis, Otto,	Halstead.
Manley, Anna R.,	Junction City.
Martindale, Nell M.,	Lawrence.
McCulloch, Irene Agnes,	Frankfort.
McKittrick, Bess Jane,	Wilson.
Miller, Marie Blanche,	Leavenworth.
Miller, Ruth C.,	Pratt.
Mix, Bertha E.,	Tecumseh.
Morris, Inez,	Tecumseh.
Morse, Florence,	Lawrence.

## SENIORS—concluded.

Mosser, Lloyd H., . . . . .	Hamlin.
Moys, Cecilia Fay, . . . . .	Lawrence.
Murphy, Beulah V., . . . . .	Lawrence.
Naylor, Rhoda Sarah, . . . . .	Holton.
O'Roke, Earl Cleveland, . . . . .	Sabetha.
Passon, Rebecca, . . . . .	Lawrence.
Phelan, Susie, . . . . .	Holyrood.
Richardson, Jennie May, . . . . .	Lawrence.
Rogers, Myra, . . . . .	Abilene.
Rossman, Mae Florence, . . . . .	Olathe.
Ruhlandt, Bernice M., . . . . .	Osawatomie.
Sellards, Bertha, . . . . .	Lawrence.
Siegel, Margaret, . . . . .	Lawrence.
Smart, Euphemia Mary, . . . . .	Ottawa.
Smith, Edna M., . . . . .	Smith Center.
Spalding, Jeannette, . . . . .	Kansas City, Mo.
Sparr, Helen Mary, . . . . .	Lawrence.
Stevens, Helen Kathleen, . . . . .	Parsons.
Stone, Ethel Lucile, . . . . .	Emporia.
Tupper, Catherine, . . . . .	Lawrence.
Ulrich, Grace Pauline, . . . . .	Lawrence.
Ulrich, Mabel Grace, . . . . .	Lawrence.
Vaughn, Everett Waldo, . . . . .	Caldwell.
Wallace, Florence Ada, . . . . .	Phillipsburg.
Walton, Nan Edgarine, . . . . .	Leavenworth.
Wheeler, Mayme, . . . . .	Guthrie, Okla.
Wiley, Gertrude, . . . . .	Arkansas City.
Wilkie, Grace, . . . . .	Wichita.
Wilkinson, Lucile Hortense, . . . . .	Muskogee, Okla.
Wilson, Elizabeth K., . . . . .	Kansas City, Mo.
Woodman, Sidney M., . . . . .	Netawaka.
Woodruff, Regina, . . . . .	Lawrence.
Woolsey, Carrie I., . . . . .	Lawrence.

SENIORS, 80.

## JUNIORS.

Anderson, Mabel May, . . . . .	Gas.
Atkinson, Vera, . . . . .	Lawrence.
Banker, Frances Almona, . . . . .	Russell.
Bates, Laura Fidelia, . . . . .	Garden City.
Bechtold, Anna Dorothea, . . . . .	Lawrence.
Black, Florence Lucile, . . . . .	Lawrence.
Black, Frances Inez, . . . . .	Lawrence.
Bozell, Bess M., . . . . .	Beloit.
Brown, Helen E., . . . . .	Delphos.
Brunner, Ellen Mildred, . . . . .	Onaga.
Buchanan, Nellie Reece, . . . . .	Lawrence.
Burrough, Phyllis Marguerite, . . . . .	Kansas City, Mo.
Butcher, Estelle V., . . . . .	Sedan.
Calene, Glenn Clifton, . . . . .	Sylvan Grove.
Clark, Gladys Ruth, . . . . .	Fredonia.
Cook, Fern Alice, . . . . .	Wellington.
Cotter, Georgia Jane, . . . . .	Kansas City, Mo.
Chase, Zula, . . . . .	Hutchinson.
Dale, LaVergne, . . . . .	Lawrence.
Daum, Bessie, . . . . .	Lawrence.
Daum, Kate, . . . . .	Lawrence.
Davidson, Helen Irene, . . . . .	Lawrence.
Degen, Helen, . . . . .	Kansas City, Mo.
Dunaway, Elizabeth, . . . . .	Oswego.
Estep, Alma, . . . . .	Kansas City, Mo.
Fleming, Louise, . . . . .	Tecumseh.
Flinn, Ruby V., . . . . .	Chanute.
Fretz, Daisy, . . . . .	Pratt.
Goldman, Irma, . . . . .	Kansas City, Mo.
Hadley, Helena, . . . . .	Glen Elder.
Harper, Iva Belle, . . . . .	Council Grove.
Housholder, Vale I., . . . . .	Columbus.
Hungate, Mary Taylor, . . . . .	Conway Springs.



## JUNIORS—concluded.

Jones, Ethel Ann, . . . . .	Chanute.
Kennedy, Elizabeth, . . . . .	Lawrence.
Lobsitz, Blanch, . . . . .	<i>Perry, Okla.</i>
Lovejoy, Edith, . . . . .	Lawrence.
Lupton, Claribel L., . . . . .	Lawrence.
Malott, Anne, . . . . .	Abilene.
Marak, Mary M., . . . . .	Halstead.
Mavity, Della, . . . . .	Lyndon.
McAllister, A. J., . . . . .	Herington.
McArthur, John C., . . . . .	Walton.
McCreath, Catherine Elizabeth, . . . . .	Lawrence.
McCreath, Frances Christina, . . . . .	Lawrence.
McMillin, Harrison, . . . . .	Arkansas City.
McNeal, Oattie, . . . . .	Norcatour.
Miller, Alfa, . . . . .	Lawrence.
Morrow, Lena M., . . . . .	Washington.
Myers, Dessie Theo., . . . . .	Lawrence.
Neumuller, Beatrice, . . . . .	<i>Kansas City, Mo.</i>
Peterson, Oliver Wellington, . . . . .	Lawrence.
Pyle, Helen M., . . . . .	Hiawatha.
Ransom, Helen Maude, . . . . .	Lawrence.
Schloss, Hazel Estelle, . . . . .	Atchison.
Smith, Ina Elizabeth, . . . . .	Lawrence.
Smyth, Jessie Miriam, . . . . .	Eureka.
Starns, Olive, . . . . .	Basehor.
Stiensmeyer, Charles G., . . . . .	Leavenworth.
Stubbs, Ansel H., . . . . .	Kansas City.
Taylor, Bess Clara, . . . . .	Lawrence.
Taylor, Grace Jay, . . . . .	Lyons.
Thomas, Mary Eleanor, . . . . .	Emporia.
Weldon, Virginia, . . . . .	Lawrence.
Whitney, Elmer L., . . . . .	Talmage.
Wingert, Florence Mae, . . . . .	<i>Kansas City, Mo.</i>
Wood, A. Rachel, . . . . .	Concordia.
Woodruff, Elizabeth Opal, . . . . .	Lawrence.
Yates, Lucile, . . . . .	Junction City.

JUNIORS, 69.

## Summer Session.

1911.

Abbott, Alice, <i>German</i> , . . . . .	Oxford.
Adair, Hugh Rogers, <i>Law</i> , . . . . .	Lawrence.
Adams, Ida Pearl, <i>Botany, Physical Education</i> , . . . . .	Sterling.
Ahrens, J. E. Henry, <i>Law</i> , . . . . .	Belleville.
Alder, Grover Cecil, <i>Chemistry</i> , . . . . .	Leonardville.
Allison, Lawrence M., <i>Physics</i> , . . . . .	Lawrence.
Armstrong, Nan, <i>Education, English</i> , . . . . .	Lawrence.
Ashton, Madeline, <i>French</i> , . . . . .	Lawrence.
Babb, Alvin Leroy, <i>German, English</i> , . . . . .	Lawrence.
Baird, Brownlee, <i>History</i> , . . . . .	Centralia.
Balch, Alta M., <i>English, Psychology</i> , . . . . .	Formoso.
Balch, E. Maye, <i>Psychology, English</i> , . . . . .	Formoso.
Barnhill, Gilbert Earl, <i>English, Mathematics, German</i> , . . . . .	McPherson.
Barrell, Fred, <i>Shop, Mathematics</i> , . . . . .	Lawrence.
Bartel, Zacharia C., <i>Psychology, Geology</i> , . . . . .	Hillsboro.
Baumgartner, Ed. A., <i>Botany</i> , . . . . .	Lawrence.
Baumgartner, Rachel, <i>English, Education, Botany</i> , . . . . .	Lawrence.
Beal, Arthur Floyd, <i>Zoology, Psychology</i> , . . . . .	Lawrence.
Bechtell, Bessie B., <i>Botany</i> , . . . . .	Macksville.
Beerbohm, Margaret, <i>Algebra</i> , . . . . .	Topeka.
Belt, Mary M., <i>English, Piano</i> , . . . . .	Oswego.
Bereman, William Everett, <i>Mathematics</i> , . . . . .	Nickerson.
Bernstorff, Ella, <i>Mathematics</i> , . . . . .	Winfield.
Berthot, Stephanie, <i>History, Mathematics</i> , . . . . .	Le Loup.
Biddison, Marcia D., <i>English, History</i> , . . . . .	Goodland.
Bishop, Beulah Irene, . . . . .	Delphos.
Bishop, Mrs. Emma C., <i>History</i> , . . . . .	Almena.
Black, Elva Marian, <i>Botany</i> , . . . . .	Ottawa.
Blackmar, Gertrude, <i>French, English, Chemistry</i> , . . . . .	Lawrence.
Bliss, Marguerite, <i>English, History</i> , . . . . .	Wichita.
Poethius, Jacob E., <i>French, English</i> , . . . . .	Lawrence.
Bond, James E., <i>Law</i> , . . . . .	Lawrence.
Booth, Ida L., <i>English</i> , . . . . .	Barclay.
Boyd, Ellinor, Fitzgerald, <i>History, English</i> , . . . . .	Independence.
Boynton, Roland Elmer, <i>History, German</i> , . . . . .	Lawrence.
Braden, J. Carroll, <i>Physical Education, History</i> , . . . . .	Lawrence.
Bradley, John, <i>Economics</i> , . . . . .	Wellington.
Briggs, Ruby Iola, <i>English</i> , . . . . .	Lawrence.
Erook, Isaiah John, <i>Law</i> , . . . . .	Blue Mound.
Erooks, Martin Kahao, <i>Spanish</i> , . . . . .	Lawrence.
Brown, Ethel Louise, <i>Latin, English</i> , . . . . .	Bullington.
Brown, Roy A., <i>Botany</i> , . . . . .	Emporia.
Brown, Wilbur E., <i>Mathematics, Chemistry</i> , . . . . .	Oklahoma City, Okla.
Brownlee, Harold J., <i>Chemistry</i> , . . . . .	Sylvia.
Bruckmiller, Frederick W., <i>Sociology, Geology</i> , . . . . .	Lawrence.
Brush, Bessie, <i>Piano</i> , . . . . .	Lawrence.
Buchanan, Nellie, <i>Piano</i> , . . . . .	Lawrence.
Buchanan, Olive, <i>Theory</i> , . . . . .	Lawrence.
Buhoup, Olive Anna, <i>German, Drawing</i> , . . . . .	Effingham.
Bulger, Catherine, <i>French, Sociology, English</i> , . . . . .	Baxter Springs.
Burdick, William Leroy, <i>Chemistry</i> , . . . . .	Lawrence.
Purger, Harley Joe, <i>Chemistry</i> , . . . . .	Reserve.
Burnett, Clanroll, <i>Law</i> , . . . . .	Girard.
Burt, Lewis Bodwell, <i>Botany</i> , . . . . .	Alta Vista.
Butcher, Estella Vee, <i>English, Latin</i> , . . . . .	Sedan.
Butler, Clide, <i>Piano</i> , . . . . .	Lawrence.
Campbell, Edyth, <i>History, Physical Education</i> , . . . . .	Manhattan.
Canty, May E., <i>English, Botany</i> , . . . . .	Buffalo.
Carmichael, Fae, <i>Psychology, English, Latin</i> , . . . . .	Lawrence.
Carpenter, Juliet, <i>Domestic Science</i> , . . . . .	Lawrence.
Carpenter Margaret, <i>English</i> , . . . . .	Oswego.
Carson, Paul C., <i>Chemistry, Embryology</i> , . . . . .	Ashland.

Carter, Marcia Wood, <i>Shop, Physical Education</i> , . . .	Lawrence.
Carter, Nellie, <i>Piano</i> , . . . . .	Lawrence.
Chandler, Mrs., <i>Piano</i> , . . . . .	Lawrence.
Cheney, Eleanor, <i>History</i> , . . . . .	Great Bend.
Clark, Eva Gill, <i>Latin, French</i> , . . . . .	Alma.
Clark, Mary Gale, <i>German</i> , . . . . .	Alma.
Clark, Russell H., <i>Law</i> , . . . . .	Kansas City, Mo.
Coe, J. E., <i>Chemistry</i> , . . . . .	Lawrence.
Cole, Edith S., <i>Chemistry</i> , . . . . .	Lawrence.
Coleman, Herbert Rockwood, <i>German, Shop</i> , . . .	Lawrence.
Connor, David Ewing, <i>German</i> , . . . . .	Lawrence.
Constant, Olive, <i>Piano</i> , . . . . .	Lawrence.
Cook, Jesse D., <i>Medicine</i> , . . . . .	Topeka.
Cook, Julius E., <i>Latin, Education, German</i> , . . .	Ness City.
Corbin, Lewis, <i>Pharmacy</i> , . . . . .	Clearwater.
Corle, Ethel, <i>Counterpoint, Composition</i> , . . .	Lawrence.
Cowell, W. H., <i>Chemistry</i> , . . . . .	Lawrence.
Craik, Elmer Leroy, <i>History, English</i> , . . . . .	McPherson.
Cramer, Frederick H., <i>Chemistry, Psychology</i> , . .	Columbus.
Crawford, Annabella, <i>Education</i> , . . . . .	Lawrence.
Crawford, Villa, <i>Botany</i> , . . . . .	Lawrence.
Cressman, Ada Beatrice, <i>Mathematics, History, Latin</i> ,	Lawrence.
Croan, Melvin, <i>Botany</i> , . . . . .	Kincaid.
Croft, John W., <i>Chemistry</i> , . . . . .	Hallowell.
Crow, H. Ernest, <i>Zoölogy</i> , . . . . .	Wichita.
Cruzan, Evelyn, <i>English, Education</i> , . . . . .	Bethany, Mo.
Cubbison, C. E., <i>Chemistry</i> , . . . . .	Gardner.
Cullison, Walter D., <i>English, Chemistry, Sociology</i> ,	Mulberry.
Dalke, Diedrich L., <i>History, Latin, Physical Edu.</i> , .	Lawrence.
Daniels, James Ganson, <i>Physics</i> , . . . . .	Kansas City, Mo.
Danskin, Floyd B., <i>History, Economics, Sociology</i> ,	Aulne.
Davis, Meta M., <i>Physics</i> , . . . . .	Valley Falls.
Dawson, Hazel, <i>Piano</i> , . . . . .	St. John.
Ditch, Esther E., <i>Chemistry</i> , . . . . .	Galva.
Dittmar, Elmer H., <i>History, Sociology, Geology</i> , . .	Clay Center.
Dolman, Katherine, <i>English, Shop</i> , . . . . .	Lawrence.
Douglas, Ethel, <i>Geology, Sociology, English</i> , . . .	Crestline.
Dousman, Donald J., <i>Chemistry</i> , . . . . .	Lawrence.
Draper, Florence, <i>Zoölogy, English</i> , . . . . .	Kansas City.
Duston, A. W., <i>Latin, Education, Math., Economics</i> ,	Washington.
Eaton, Lola Earle, <i>French, Psychology</i> , . . . . .	Lawrence.
Ebel, Bartel E., <i>French, Spanish, Physical Education</i> ,	Hillsboro.
Ebnother, Chas. W., . . . . .	Puget Sound, Wash.
Edie, Fern Elizabeth, <i>Music</i> , . . . . .	Lawrence.
Elliott, Gladys E., <i>Physical Education</i> , . . . . .	Lawrence.
Elliott, Harry H., <i>Botany</i> , . . . . .	Lawrence.
Élliott, James Ryan, <i>Physics, Botany</i> , . . . . .	Linn.
Ellis, Frances Maud, . . . . .	El Dorado.
Ellis, John James, . . . . .	Kansas City, Mo.
Emerson, Herbert William, <i>Medicine</i> , . . . . .	Lawrence.
Emery, George V., <i>Botany</i> , . . . . .	Wetmore.
Fairchild, Samuel G., <i>Mathematics</i> , . . . . .	Hutchinson.
Fast, Arthur Herman, <i>Law</i> , . . . . .	Baldwin.
Faulkner, James T., <i>Botany, Economics</i> , . . . . .	Lansing.
Fleeson, Elizabeth, <i>English, History, Botany</i> , . . .	Sterling.
Fleming, Louise, <i>Mathematics, Physical Education</i> ,	Tecumseh.
Flinn, Ruby Vee, <i>English, Mathematics</i> , . . . . .	Chanute.
Foulk, M. Pearl, <i>German, English, Mathematics</i> ,	Holton.
Foulston, Robert Clare, <i>Law</i> , . . . . .	Wichita.
Fox, Margaret, <i>Piano</i> , . . . . .	
Freark, Winona, <i>Physical Education</i> , . . . . .	Lawrence.
Freeman, Luella Ida, <i>English</i> , . . . . .	Wellston, Okla.
Gallagher, Helen, <i>Piano</i> , . . . . .	Lawrence.
Gambill, William G., <i>Sociology, History, Edu., Psych.</i> ,	Tonganoxie.
Gerkan, Lillie, <i>Piano</i> , . . . . .	Lawrence.
Gibbons, J. R., <i>Education, History, Botany</i> , . . .	Troy.
Gibson, Admund, Jennings, <i>English, History</i> , . . .	McCune.
Giesel, William, <i>French, History</i> , . . . . .	Overbrook.
Goertz, Peter L., <i>Education, History</i> , . . . . .	Hillsboro.
Gossard, Alvin H., <i>Chemistry, Economics</i> , . . . .	Kansas City, Mo.
Graham, Mat H., <i>Chemistry</i> , . . . . .	Leavenworth.

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White, Grace, . . . . .	Lawrence.
Wilkie, Grace, <i>Chemistry, Botany</i> , . . . . .	Wichita.
Williams, Bertha Juanita, <i>Music, Voice</i> , . . . . .	Lawrence.
Williams, Callie Ann, <i>English</i> , . . . . .	Lawrence.
Williams, Francis Xavier, <i>Entomology</i> , . . . . .	Lawrence.
Wilson, Orville T., <i>Botany, Physical Education</i> , . . . . .	Emporia.
Withington, Charles H., <i>Zoölogy</i> , . . . . .	Lawrence.
Withington, Georgia, <i>Psychology, History</i> , . . . . .	Lawrence.
Wixson, Manley J., <i>Psychology, Physics</i> , . . . . .	Clifton.
Woolsey, Carrie I., <i>Education, Botany</i> , . . . . .	Lawrence.
Woolverton, Mary Elizabeth, <i>Sociology, Home Eco.</i> , . . . . .	Abilene.
Wyeth, Addy Burnham, <i>English, Education, English</i> , . . . . .	Lawrence.
Yates, Josephine, <i>English</i> , . . . . .	Kansas City, Mo.
Young, Benjamin, <i>Education</i> , . . . . .	Halstead.
Zoellner, Leslie R., <i>Sociology</i> , . . . . .	Tonganoxie.



## Health Officers' School.

(In connection with the Summer Session of 1911.)

Aldrich, Dr. H. L., . . . . .	Caney.
Alexander, Dr. B. J., . . . . .	Hiawatha.
Allen, Dr. I. M., . . . . .	Wichita.
Clark, Dr. Arthur Wellington, . . . . .	Lawrence.
Cole, Dr. T. C., . . . . .	Atchison.
Crumbine, Dr. S. J., . . . . .	Topeka.
Deacon, Dr. William J. V., . . . . .	Topeka.
DeTar, Dr. M., . . . . .	Kinsley.
Dillon, Dr. A. C., . . . . .	Osborne.
Gillispie, Dr. S. T., . . . . .	Lawrence.
Smith, Dr. Albert Godfrey, . . . . .	Oskaloosa.
Greenfield, Dr. S. E., . . . . .	Topeka.
Henson, Dr. John H., . . . . .	Mound Valley.
Hensun, Dr. W. S., . . . . .	Junction City.
Hooper, Dr. W. L., . . . . .	Fort Scott.
Hutchison, Dr. O. G., . . . . .	Wichita.
Jarrett, Dr. Millard Fillmore, . . . . .	Fort Scott.
Kamp, Dr. William, . . . . .	Belleville.
Kenney, Dr. C. S., . . . . .	Norton.
Lerrigo, Dr. Charles H., . . . . .	Topeka.
Leslie, Dr. C. B., . . . . .	Meade.
Loddell, Dr. Mary J., . . . . .	Beloit.
Mahoney, Dr. John Dennis, . . . . .	Philadelphia, Pa.
Matassarini, Dr. Leon, . . . . .	Lawrence.
McGinnis, Dr. S. S., . . . . .	Tribune.
Montgomery, Dr. J. C., . . . . .	Manhattan.
Millington, Dr. G. L., . . . . .	Wellington.
Miner, Dr. L. V., . . . . .	Santa Fe.
Moore, Dr. D. B., . . . . .	Osage City.
Nelson, Dr. Charles R., . . . . .	Washington.
Nye, Dr. W. W., . . . . .	Hiawatha.
O'Donnell, Dr. Alfred, . . . . .	Ellsworth.
Quantius, Dr. Leland F., . . . . .	McPherson.
Ressler, Dr. C. E., . . . . .	Anthony.
Reynolds, Dr. Sam E., . . . . .	Clay Center.
Siever, Dr. Charles M., . . . . .	Holton.
Sippy, Dr. John J., . . . . .	Belle Plaine.
Sprinkel, Dr. Charles G., . . . . .	Sharon Springs.
Thompson, Dr. Charles W., . . . . .	Burden.
Thompson, Dr. W. O., . . . . .	Dodge City.
Walker, Dr. A. E., . . . . .	Anthony.
Walker, Dr. O. D., . . . . .	Salina.
Warren, Dr. L. P., . . . . .	Wichita.
Wickersham, Dr. E. C., . . . . .	Independence.
Zugg, Dr. Clarence Logan, . . . . .	Kansas City.

## Summary of Enrollment.

1911-'12.

SCHOOLS.	Men.	Women.	Total.
<b>The Graduate School.</b>	<b>86</b>	<b>36</b>	<b>122</b>
<b>The College of Liberal Arts and Sciences.</b>	<b>612</b>	<b>554</b>	<b>1,166</b>
Senior Class .....	92	112	204
Junior Class .....	88	111	199
Sophomore Class .....	121	124	245
Freshman Class .....	199	157	356
Specials .....	112	50	140
<b>The School of Engineering.</b>	<b>404</b>		<b>404</b>
Senior Class .....	62		62
Junior Class .....	91		91
Sophomore Class .....	102		102
Freshman Class .....	132		132
Specials .....	17		17
<b>The School of Fine Arts.</b>	<b>15</b>	<b>195</b>	<b>210</b>
Senior Class .....	1	28	29
Junior Class .....		17	17
Sophomore Class .....	1	29	30
Freshman Class .....	2	43	45
Specials .....	11	78	89
<b>The School of Law.</b>	<b>267</b>	<b>1</b>	<b>268</b>
Senior Class .....	60		60
Middle Class .....	59		59
Junior Class .....	142	1	143
Specials .....	6		6
<b>The School of Pharmacy.</b>	<b>69</b>	<b>9</b>	<b>78</b>
Senior Class .....	17	3	20
Junior Class .....	40	5	45
Sophomore Class .....	10	1	11
Freshman Class .....	1		1
Specials .....	1		1
<b>The School of Medicine.</b>	<b>75</b>	<b>20</b>	<b>95</b>
Fourth Year .....	15		15
Third Year .....	9		9
Second Year .....	16	1	17
First Year .....	31	3	34
Specials .....	4		4
Nurses .....		16	16
<b>The School of Education.</b>	<b>28</b>	<b>132</b>	<b>160</b>
Graduates .....	7	4	11
Seniors .....	12	68	80
Juniors .....	9	60	69
<b>Total Enrollment Regular Session.</b>	<b>1,556</b>	<b>947</b>	<b>2,503</b>
Names counted twice .....	254	75	329
	<b>1,302</b>	<b>872</b>	<b>2,174</b>
<b>The Summer Session.</b>	223	212	435
Current Students in Summer Session .....	93	79	172
	<b>130</b>	<b>133</b>	<b>263</b>
<b>Total Registration, 1911-'12.</b>	<b>1,432</b>	<b>1,005</b>	<b>2,437</b>

## Classification of Students.

### BY KANSAS COUNTIES.

Allen .....	18	Graham .....	6	Pawnee .....	5
Anderson .....	20	Greenwood .....	12	Phillips .....	4
Atchison .....	29	Hamilton .....	1	Pottawatomie .....	17
Barber .....	11	Harper .....	4	Pratt .....	5
Barton .....	17	Harvey .....	34	Rawlins .....	2
Bourbon .....	26	Jackson .....	21	Reno .....	46
Brown .....	25	Jefferson .....	14	Republic .....	11
Butler .....	23	Jewell .....	11	Rice .....	19
Chase .....	5	Johnson .....	37	Riley .....	7
Chautauqua .....	6	Kingman .....	12	Rooks .....	7
Cherokee .....	42	Kiowa .....	3	Rush .....	5
Cheyenne .....	4	Labette .....	43	Russell .....	12
Clark .....	7	Leavenworth .....	44	Saline .....	8
Clay .....	16	Lincoln .....	4	Scott .....	3
Cloud .....	16	Linn .....	13	Sedgwick .....	65
Coffey .....	4	Logan .....	3	Seward .....	2
Comanche .....	5	Lyon .....	26	Shawnee .....	41
Cowley .....	32	Marion .....	18	Sheridan .....	1
Crawford .....	23	Marshall .....	27	Sherman .....	2
Decatur .....	6	McPherson .....	30	Smith .....	13
Dickinson .....	50	Meade .....	1	Stafford .....	11
Doniphan .....	16	Miami .....	22	Sumner .....	25
Douglas* .....	639	Mitchell .....	13	Thomas .....	3
Edwards .....	7	Montgomery .....	41	Trego .....	3
Elk .....	7	Morris .....	6	Wabaunsee .....	17
Ellis .....	5	Nemaha .....	31	Wallace .....	3
Ellsworth .....	14	Neosho .....	23	Washington .....	13
Finney .....	7	Ness .....	2	Wichita .....	1
Ford .....	6	Norton .....	6	Wilson .....	11
Franklin .....	23	Osage .....	15	Woodson .....	2
Geary .....	18	Osborne .....	13	Wyandotte .....	116
Gove .....	1	Ottawa .....	12		

\* A large number of students whose names appear in this catalogue as residents of Douglas county are so catalogued because they temporarily reside in Lawrence for the purpose of attending the University.

### CLASSIFICATION BY STATES.

Arizona .....	1	Iowa .....	4	Nebraska .....	3
Arkansas .....	1	Japan .....	1	Ohio .....	1
California .....	1	Kansas .....	2,161	Oklahoma .....	35
Canada .....	4	Kentucky .....	1	Pennsylvania .....	1
Colorado .....	8	Michigan .....	1	Texas .....	2
Cuba .....	1	Missouri .....	197	Utah .....	1
Germany .....	1	Montana .....	4	Vermont .....	1
Idaho .....	1	New Mexico .....	1		
Illinois .....	3	New York .....	2	Total .....	2,437

## Acknowledgments.

Gifts to the Library, January, 1911, to March, 1912.

	Vols.
American Bar Association.....	1
Bailey, Prof. E. H. S., Lawrence, Kan.....	3
Barnett, William Q., Wichita, Kan.....	3
Bennett, Rev. F. M., Lawrence.....	7
Blackmar, Dr. F. W., Lawrence.....	11
Bowditch, Mr. C. P., Boston.....	1
Boynton, Prof. A. J., Lawrence.....	3
Brown, Mr. Leonard, Des Moines, Iowa.....	1
Brown, Miss Lola, Lawrence.....	1
Brunetti, Virginia Woodbury Lowery, Duchess of Arcos.....	2
Bryant, Mrs. Dora Renn, Lawrence.....	16
Burnham, Mrs. Nellie, Lawrence.....	7
Chalkley, Mrs. I. H., Lawrence.....	2
Citizens Health Commission, San Francisco.....	1
Columbia University, New York City.....	2
Commercial Club of Chicago.....	1
Connecticut State Geological and Natural History Survey.....	1
Covenant Publishing Company, Brooklyn, N. Y.....	1
Dew, Mr. Jere T., Kansas City, Mo.....	1
Drowne, Mr. H. B., Providence, R. I.....	4
Dunlap, Dr. C. G., Lawrence.....	2
Ellis, A. D., East Syracuse, N. Y.....	1
Farnsworth, E. C., Portland, Me.....	1
Ford, Bacon and Davis, New York City.....	2
Germanistic Society of America, New York City.....	1
Grand Army of the Republic, Kansas City, Kan.....	18
Hall, J. G., Clemson College, South Carolina.....	1
Hyde, Dr. Ida H., Lawrence.....	1
Illinois Geological Survey, Urbana, Ill.....	3
Illinois State Historical Library.....	2
Interstate Commerce Commission, Washington.....	5
Indiana Geological Survey, Indianapolis.....	1
Iowa Board of Railroad Commissioners, Des Moines.....	2
Jefferson Physical Laboratory, Cambridge, Mass.....	2
King-Richardson Co., Springfield, Mass.....	1
Klausner, J., New York City.....	1
Kansas Bureau of Labor and Industry, Topeka.....	6
Kansas State Board of Agriculture, Topeka.....	1
Kansas State Historical Society, Topeka.....	22
Kansas Tax Commission, Topeka.....	1
Kung, Dr. G. F., New York City [through Journal World, Lawrence]....	1
Library of Congress, Washington.....	12
Longman, Green and Co., London.....	2
McArdle, Mr. M. P., St. Louis, Mo.....	1
Macomb, J. R., Topeka.....	2
Madison, Mrs. Mary R., New York City.....	2
Manning, Mr. E. C., Winfield, Kan.....	1
Marvin, Dean F. O., Lawrence.....	7
Miller, Prof. E., Pasadena, Cal.....	348
Missouri Bureau of Geology and Mines, Rollo, Mo.....	3
Missouri Botanical Gardens, St. Louis, Mo.....	2
Moffat, Yard & Co., New York City.....	1
National Association for the Advancement of Colored People, New York City, .....	1
New York Department of Labor, Albany, N. Y.....	5
New York Life Insurance Co., New York City.....	1
New York Water Supply Co., Albany, N. Y.....	5
Parke, Davis and Co., Kansas City, Mo.....	284
Pennsylvania Department of Agriculture.....	1
Porter, Mr. R. P., New York City.....	2
Railroad Commissioners, Hartford, Conn.....	2



Robinson, Mrs. Sara T. D. L., Lawrence, bequest.....	24
Seammon, Mr. R. E., Lawrence.....	2
Secretary of State, Topeka.....	2
Shirley, Mr. J., New Farm, Brisbane.....	1
Smithsonian Institution, Washington.....	44
Snow, Mrs. F. H., Lawrence.....	1
Special Tax Commission, Urbana, Ill.....	1
Spivah, Dr. C. D., Denver, Colo.....	2
State Historian, Albany, N. Y.....	2
Sterling, Prof. C. M., Lawrence.....	1
Strong, Chancellor Frank, Lawrence.....	1
Teubner, B. F., Leipzig.....	1
Thompson, S., Chicago.....	1
United States Department of Interior, Washington.....	4
United States National Museum, Washington.....	7
United States Superintendent of Documents, Washington.....	3
University of Kansas Alumni Association, Lawrence.....	2
University of Kansas, Department of Geology, Lawrence.....	4
University of Michigan Library, Ann Arbor, Mich.....	3
West Publishing Company, St. Paul, Minn.....	5
Wilber, Mrs. F. A., Kansas City, Mo.....	6
Wilcox, Dr. A. M., Lawrence.....	34
Williams, The Misses, Philadelphia.....	2
Wisconsin, Railroad Commission, Madison.....	2
Wisconsin State Historical Society, Madison.....	10

## Newspapers and Periodicals Received.

### DAILIES.

Abilene Daily Reflector.....	Abilene.
Arkansas City Daily Traveler.....	Arkansas City.
Atchison Daily Champion.....	Atchison.
Atchison Daily Globe.....	Atchison.
Augusta Daily Gazette.....	Augusta.
Beloit Daily Call.....	Beloit.
Chanute Daily Tribune.....	Chanute.
Cherryvale Journal.....	Cherryvale.
Christian Science Monitor (Miss Cora Taylor, Lawrence) .....	Boston, Mass.
Clay Center Dispatch.....	Clay Center.
Coffeyville Daily Earth.....	Coffeyville.
Daily Blade .....	Concordia.
Daily Gazette .....	Lawrence.
Daily Republican .....	Cherryvale.
Daily Republican .....	Clay Center.
Deseret Evening News.....	Salt Lake City, Utah.
El Dorado Daily Republican.....	El Dorado.
Emporia Gazette .....	Emporia.
Evening Free Press.....	Winfield.
Evening Herald .....	Ottawa.
Evening Star .....	Independence.
Evening Review .....	Garnett.
Fort Scott Daily Republican.....	Fort Scott.
Fort Scott Tribune.....	Fort Scott.
Garnett Evening News.....	Garnett.
Great Bend Daily Tribune.....	Great Bend.
Humboldt Daily Herald.....	Humboldt.
Hutchinson Daily Gazette.....	Hutchinson.
Hutchinson News .....	Hutchinson.
Independence Daily Reporter.....	Independence.
Iola Daily Register.....	Iola.
Joplin Morning Tribune.....	Joplin, Mo.
Kansas City Journal.....	Kansas City, Mo.
Kansas City Star and Times.....	Kansas City, Mo.
Lawrence Daily Journal World.....	Lawrence.
Leavenworth Post .....	Leavenworth.
Leavenworth Times .....	Leavenworth.
McPherson Daily Republican.....	McPherson.
Neodesha Daily Sun.....	Neodesha.
Newton Evening Kansan-Republican.....	Newton.
Norton Daily Telegram.....	Norton.
Ottawa Daily Republic.....	Ottawa.
Parsons Daily Eclipse .....	Parsons.
Parsons Daily Sun.....	Parsons.
Salina Daily Union.....	Salina.
Salina Evening Journal.....	Salina.
Topeka Daily Capital.....	Topeka.
Topeka State Journal.....	Topeka.
Wichita Beacon .....	Wichita.
Wichita Eagle .....	Wichita.
Winfield Daily Courier.....	Winfield.

### WEEKLIES.

Abilene Democrat .....	Abilene.
Abilene Weekly Chronicle.....	Abilene.
Advocate .....	El Dorado.
Advocate-Democrat .....	Marysville.
A. H. T. A. Weekly News.....	St. Paul.
Alden Journal .....	Alden.
Allen Enterprise .....	Allen.

WEEKLIES--continued.

Alma Enterprise .....	Alma.
Alma Signal .....	Alma.
Altamont Journal .....	Altamont.
Alta Vista Journal .....	Alta Vista.
Alton Empire .....	Alton.
America: a Catholic Review (Prof. J. D. Newton, Chicago) .....	New York City, N. Y.
American Economist .....	New York City, N. Y.
Americus Greeting .....	Americus.
Anthony Bulletin .....	Anthony.
Anthony Republican .....	Anthony.
Arcadia Sunlight .....	Arcadia.
Argentine Republic .....	Argentine.
Argonia Clipper .....	Argonia.
Arlington Enterprise .....	Arlington.
Ashland Clipper .....	Ashland.
Atchison Church Visitor .....	Atchison.
Atlanta Journal .....	Atlanta.
Barber County Index .....	Medicine Lodge.
Barnard Bee .....	Barnard.
Barnes Chief .....	Barnes.
Barton County Democrat .....	Great Bend.
Baxter Springs Chief .....	Baxter Springs.
Beaver Valley Booster .....	Cedar Bluffs.
Belle Plaine News .....	Belle Plaine.
Belleville Telescope and Belleville Freeman .....	Belleville.
Beloit Gazette .....	Beloit.
Bern Gazette .....	Bern.
Bethany Messenger .....	Lindsborg.
Beverly Tribune .....	Beverly.
Bison Bee .....	Bison.
Bluff City News .....	Bluff City.
Bonner Springs Chieftain .....	Bonner Springs.
Breeders Gazette .....	Chicago, Ill.
Bronson Pilot .....	Bronson.
Brownell Courier .....	Brownell.
Bucklin Banner .....	Bucklin.
Buffalo Advocate .....	Buffalo.
Bunker Hill Banner .....	Bunker Hill.
Burden Times .....	Burden.
Burlingame Enterprise .....	Burlingame.
Burlington Republican .....	Burlington
Burns Citizen .....	Burns.
Burr Oak Herald .....	Burr Oak.
Burrton Free Lance .....	Burrton.
Burrton Graphic .....	Burrton.
Caldwell Advance .....	Caldwell.
Caldwell News .....	Caldwell.
Caney Chronicle .....	Caney.
Caney News .....	Caney.
Canton Pilot .....	Canton.
Carbondale Post .....	Carbondale.
Cassoday Times .....	Cassoday.
Catholic Advance .....	Wichita.
Cawker City Ledger .....	Cawker City.
Cawker City Public Record .....	Cawker City.
Central Baptist .....	St. Louis, Mo.
Centralia Journal .....	Centralia.
Central Kansas Democrat .....	Lyons.
Champion .....	Norton.
Chanute Times .....	Chanute.
Chase County Leader .....	Cottonwood Falls.
Chase Register .....	Chase.
Cheney Sentinel .....	Cheney.
Cherokee County Republican .....	Baxter Sprngs.
Chetopa Advance .....	Chetopa.
Chetopa Clipper .....	Chetopa.
Christian Companion .....	Wichita.
Christian Register .....	Boston, Mass.

WEEKLIES—*continued.*

Christian Science Sentinel.....	Boston, Mass.
Claffin Clarion .....	Claffin.
Clay Center Dispatch.....	Clay Center.
Clay Center Times.....	Clay Center.
Clearwater Courant .....	Clearwater.
Coats Courant .....	Coats.
Colby Tribune .....	Colby.
Coldwater Talisman .....	Coldwater.
Colony Free Press.....	Colony.
Columbus Advocate .....	Columbus.
Commoner .....	Lincoln, Neb.
Concordia Kansan .....	Concordia.
Conway Springs Star.....	Conway Springs.
Corning Gazette .....	Corning.
Council Grove Guard.....	Council Grove.
Council Grove Republican.....	Council Grove.
County Capital .....	St. John.
Courier Democrat .....	Seneca.
Cuba Daylight .....	Cuba.
Decatur County News.....	Oberlin.
Dearing Times .....	Dearing.
Democrat .....	McPherson.
Democrat .....	Wichita.
Der Herald .....	Newton.
De Soto Herald.....	De Soto.
Dexter Dispatch .....	Dexter.
Dickinson County News.....	Abilene.
Dodge City Kansas Journal.....	Dodge City.
Douglass Tribune .....	Douglass.
Downs News .....	Downs.
Downs Times .....	Downs.
Dresden Sunflower .....	Dresden.
Eagle-Plaindealer .....	Garnett.
Effingham New Leaf.....	Effingham.
El Dorado Weekly Republican.....	El Dorado.
Elk City Sun.....	Elk.
Elk County Citizen.....	Howard.
Ellinwood Leader .....	Ellinwood.
Ellis County News.....	Hays City.
Ellis Review-Headlight .....	Ellis.
Ellsworth Messenger .....	Ellsworth.
Ellsworth Reporter .....	Ellsworth.
Emmett Citizen .....	Emmett.
Enterprise Push .....	Enterprise.
Erie Record .....	Erie.
Erie Sentinel .....	Erie.
Eskridge Tribune-Star .....	Eskridge.
Eudora Weekly News.....	Eudora.
Eureka Herald .....	Eureka.
Everest Enterprise .....	Everest.
Fairview Enterprise .....	Fairview.
Fall River Times.....	Fall River.
Farm, Field and Garden.....	London, England.
Farmer and Stockman.....	Kansas City, Mo.
Farmer's Mail and Breeze.....	Topeka.
Farmer's Voice .....	Clyde.
Florence Bulletin .....	Florence.
Fort Leavenworth News .....	Fort Leavenworth.
Fort Riley Guidon.....	Fort Riley.
Fowler Gazette .....	Fowler.
Fredonia Herald .....	Fredonia.
Galena Weekly Republican.....	Galena.
Garden City Herald.....	Garden City.
Garden City Telegram and Imprint.....	Garden City.
Gardner Gazette .....	Gardner.
Garnett Journal .....	Garnett.
Girard Press .....	Girard.
Goddard Gazette .....	Goddard.
Goff Advance .....	Goff.



WEEKLIES—continued.

Goodland Republic .....	Goodland.
Gove County Record.....	Grinnell.
Great Bend Tribune.....	Great Bend.
Gove County Advocate .....	Quinter.
Grant County Republican.....	New Ulysses.
Greeley County Republican.....	Tribune.
Greenleaf Sentinel .....	Greenleaf
Grenola Leader .....	Grenola.
Gridley Light .....	Gridley.
Haddam City Clipper.....	Haddam City.
Hanover Democrat .....	Hanover.
Hamilton County Republican.....	Syracuse.
Hanover Herald .....	Hanover.
Harper Advocate .....	Harper.
Harper Sentinel .....	Harper.
Haskell County Republican-Monitor.....	Santa Fe.
Haven Weekly Journal.....	Haven.
Hays Free Press.....	Hays City.
Hays City Republican.....	Hays City.
Headlight-Commercial .....	Horton.
Herald of Gospel Liberty.....	Dayton, Ohio.
Herbert's Magazine .....	Hiawatha.
Herington Sun .....	Herington.
Herington Times .....	Herington.
Herndon Nonpareil .....	Herndon.
Holton Recorder .....	Holton.
Holton Signal .....	Holton.
Holyrood Banner .....	Holyrood.
Howard Courant .....	Howard.
Hoxie Sentinel .....	Hoxie.
Hoyt Sentinel .....	Hoyt.
Hudson Patriot .....	Hudson.
Hugoton Hermes .....	Hugoton.
Humboldt Union .....	Humboldt.
Huron Herald .....	Huron.
Hutchinson Wholesaler .....	Hutchinson.
Illustrated London News (Mrs. J. H. Chalkley, Lawrence) .....	London, England.
Independent .....	Attica.
Independent .....	Burlington.
Independent (Prof. E. H. S. Bailey, Lawrence)...	New York City, N. Y.
Independent .....	White Water.
Indian Leader .....	Haskell Institute, Lawrence.
Inman Review .....	Inman.
Irving Leader .....	Irving.
Jacksonian .....	Cimarron.
Jefferson County Tribune.....	Oskaloosa.
Jetmore Republican .....	Jetmore.
Jewell County Monitor.....	Mankato.
Jewell County Republican.....	Jewell City.
Junction City Republic.....	Junction City.
Junction City Sentinel.....	Junction City.
Junction City Union.....	Junction City.
Kanopolis Journal .....	Kanopolis.
Kansas Commoner .....	Wichita.
Kansas Farmer .....	Topeka.
Kansas Industrial .....	Manhattan.
Kansas News Democrat.....	Hiawatha.
Kansas Optimist .....	Jamestown.
Kansas Star .....	Olathe.
Kanské Rozhledy .....	Wilson.
Kearny County Advocate.....	Lakin.
Key .....	Hiawatha.
Kincaid Dispatch .....	Kincaid.
Kingman Journal .....	Kingman.
Kinsley Graphic .....	Kinsley.
Kinsley Mercury .....	Kinsley.
Kiowa County Signal.....	Greensburg.

WEEKLIES—*continued.*

Kiowa News-Review .....	Kiowa.
Labor Leader .....	Baltimore, Md.
Labor Chronicle and Resubmissionist .....	Leavenworth.
La Crosse Republican .....	La Crosse.
La Cygne Weekly Journal .....	La Cygne.
La Cygne Weekly Record .....	La Cygne.
Larned Chronoscope .....	Larned.
La Follette Magazine .....	New York City, N. Y.
Latham Mirror .....	Latham.
Lawrence Germania .....	Lawrence.
Leader Tribune .....	Englewood.
Leavenworth Tribune .....	Leavenworth.
Lebanon Times .....	Lebanon.
Lebo Enterprise .....	Lebo.
Lebo Star .....	Lebo.
Lecompton Sun .....	Lecompton.
Lenora News .....	Lenora.
Lenora Sun .....	Lenora.
Liberal Democrat .....	Liberal.
Lincoln Republican .....	Lincoln.
Lincoln Sentinel .....	Lincoln.
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Browning Magazine .....	Kansas City, Mo.
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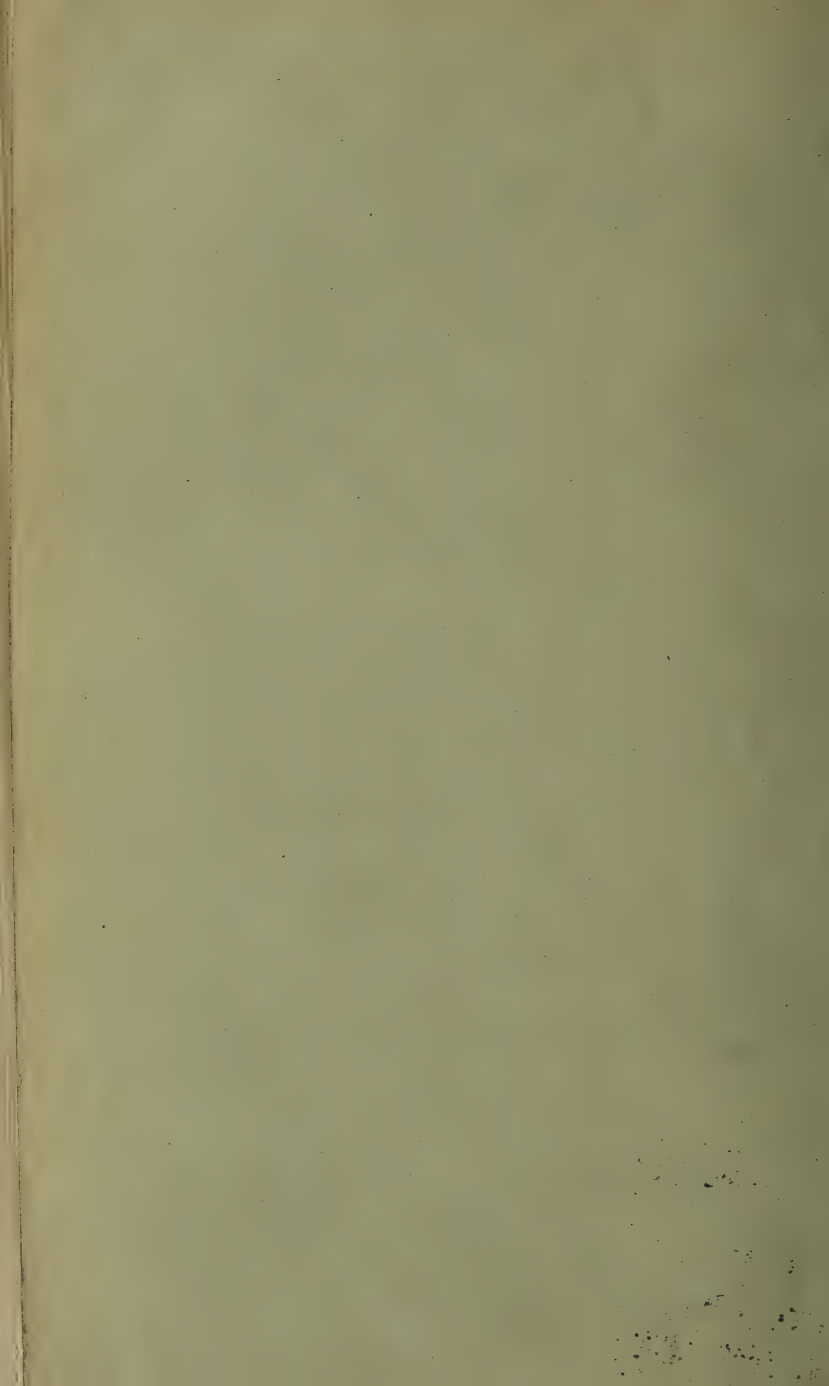
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